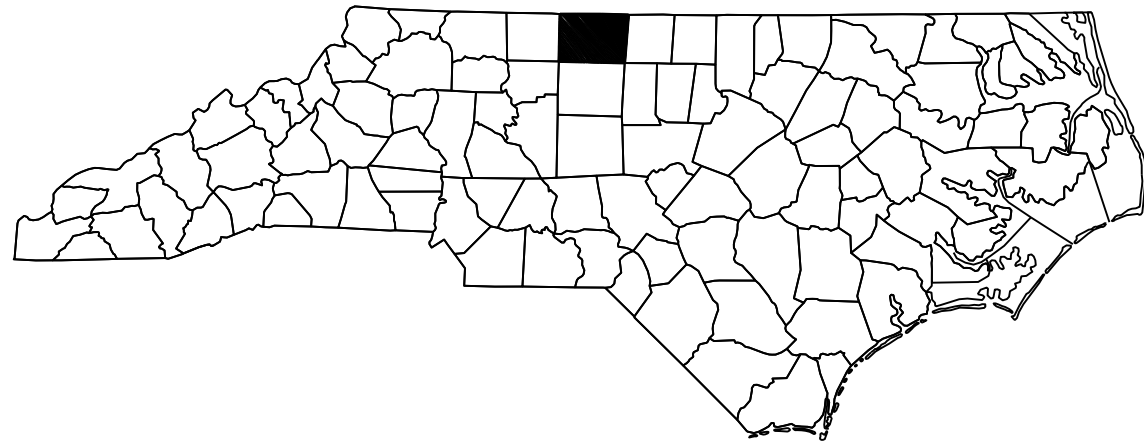


CONTRACT: DG00430 PROJECT: 15BPR.5



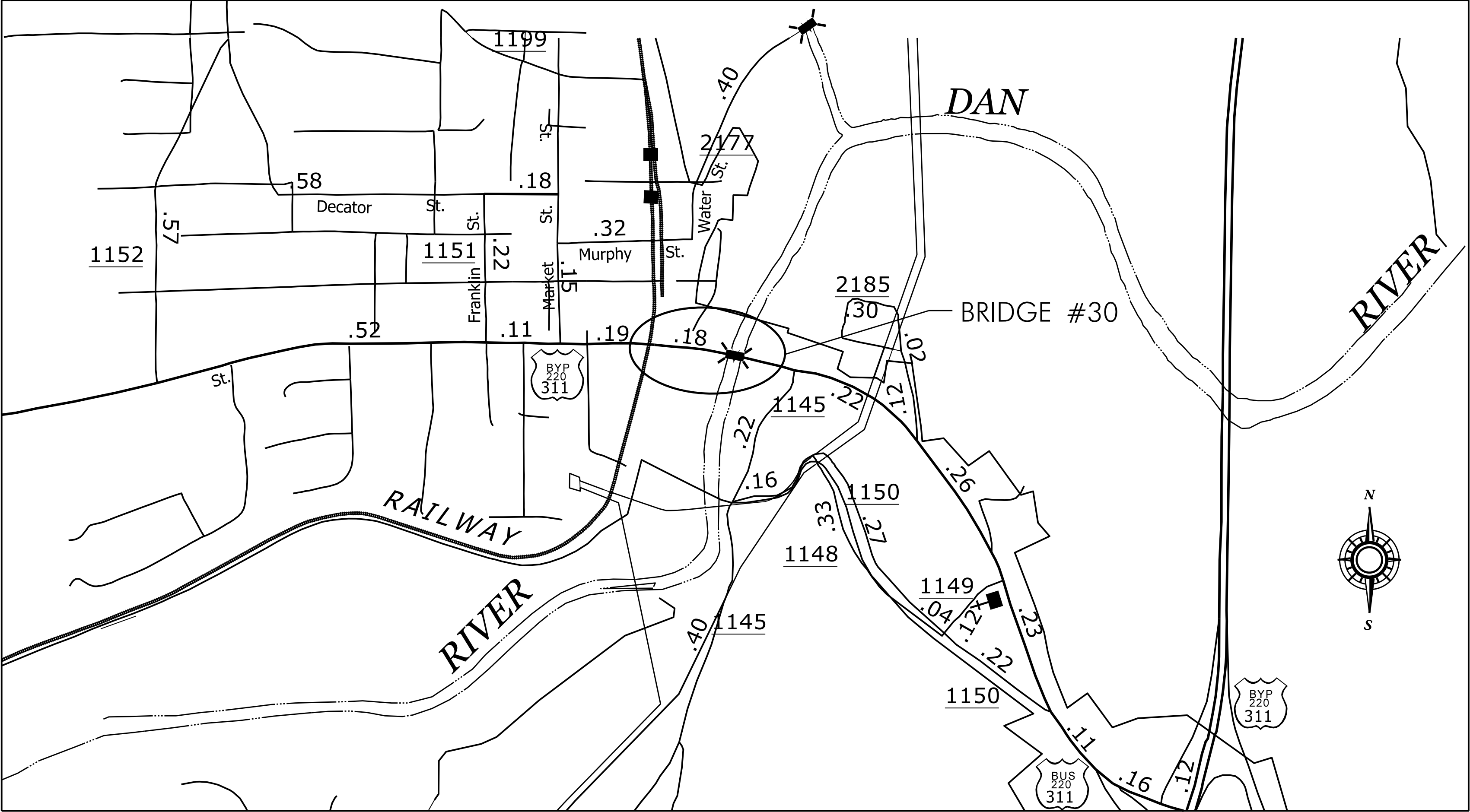
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

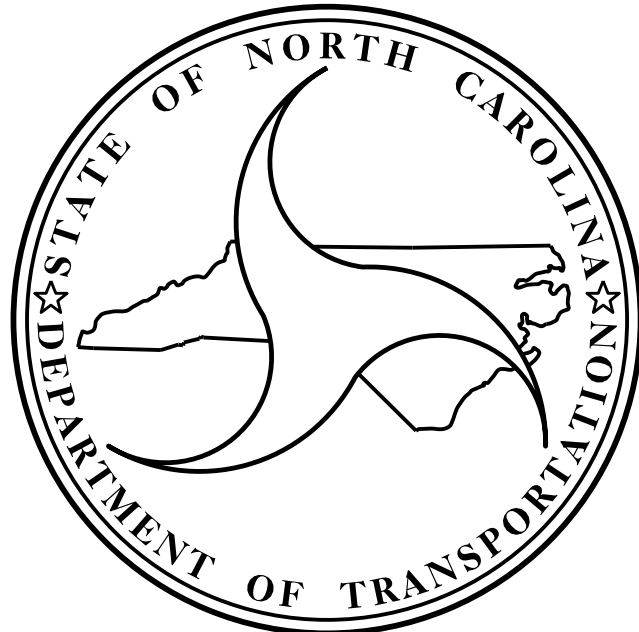
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.5	1	
WBS NO.		F.A. PROJ. NO.	DESCRIPTION
15BPR.5			P.E.
15BPR.5			CONST.

LOCATION: BRIDGE #30 ON US311 & US220 BUS OVER DAN RIVER,  
NORFOLK SOUTHERN RAILWAY AND S. WATER ST.

TYPE OF WORK: BRIDGE PRESERVATION - DECK OVERLAY, PRESTRESSED GIRDER  
REPAIR, JOINT SEAL REPLACEMENT AND SUBSTRUCTURE REPAIR



VICINITY MAP - ROCKINGHAM CO.



DESIGN DATA

ROCKINGHAM COUNTY  
ADT 2015 = 11,000

PROJECT LENGTH

ROCKINGHAM COUNTY  
#30 = 0.193 MILE

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
STRUCTURES MANAGEMENT UNIT  
1000 BIRCH RIDGE DR.  
RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS

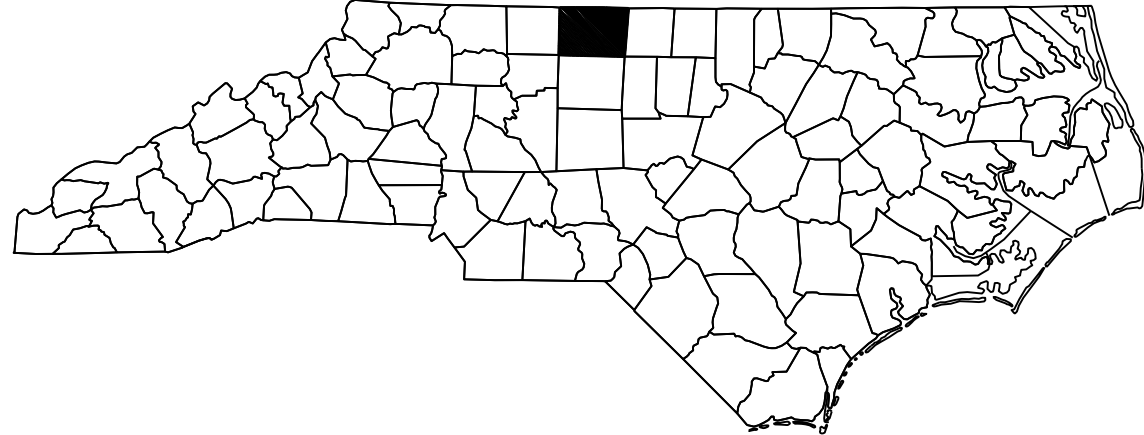
LETTING DATE :  
APRIL 19, 2018

A. KEITH PASCHAL, P.E.  
PROJECT ENGINEER

KRISHNA P. SEDAI, P.E.  
PROJECT DESIGN ENGINEER

PROJECT: 15BPR.5

CONTRACT: DG00430



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

LOCATION: BRIDGE #30 ON US311 & US220 BUS OVER DAN RIVER, NORFOLK  
SOUTHERN RAILWAY AND S. WATER ST.

TYPE OF WORK: BRIDGE PRESERVATION – DECK OVERLAY, PRESTRESSED GIRDER REPAIR,  
JOINT SEAL REPLACEMENT AND SUBSTRUCTURE REPAIR

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.5	1A	
WBS NO.		F.A. PROJ. NO.	DESCRIPTION
15BPR.5			P.E.
15BPR.5			CONST.

INDEX OF SHEETS

I	TITLE SHEET
1A	INDEX OF SHEETS
S-1 THRU S-55	STRUCTURAL PLANS – BRIDGE NO. 30
S-56	TYPICAL CAP AND COLUMN REPAIR DETAILS
S-57	JACKING DETAILS
SN	STANDARD NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE  
ORIGINAL PLANS AND THE ROUTINE INSPECTION  
REPORT DATED 9/20/2017.

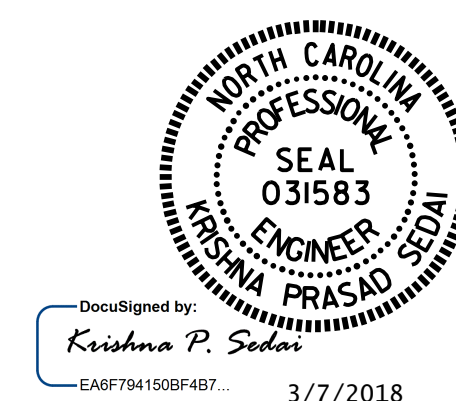
[illegible]

The plan view shows the bridge structure with the following details:

- Spans and Dimensions:**
  - Span A: 89'-0" (ALONG ARC)
  - Span B: 53'-6" (ALONG ARC)
  - Span C: 87'-6" (ALONG ARC)
  - Span D: 87'-6" (ALONG ARC)
  - Total length (Fill Face to Fill Face): 1,018'-9" (ALONG ARC & TANGENT)
- Angles and Curves:**
  - 101°-55'-34.3" TO TAN. (at the start of Span A)
  - 100°-35'-28.3" TO TAN. (between Span B and Span C)
  - 90°-00'-00" TO TAN. (TYP.) (between Span C and Span D)
- Structural Features:**
  - FILL FACE @ END BENT 1 (at the start of Span A)
  - NORFOLK & WESTERN RAILWAY (crossing over the bridge)
  - JOINT @ BENT 1, JOINT @ BENT 2, JOINT @ BENT 3 (locations of bridge joints)
  - ORIGINAL SURVEY (line indicating the original survey path)
  - 15' GRAVEL (areas on either side of the bridge structure)
- Orientation and Reference:**
  - TO SR 1151 (direction towards State Route 1151)
  - TO SR 1145 (direction towards State Route 1145)
  - PLAN (indicated at the bottom of the drawing)

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED  
ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

DATE \_\_\_\_\_



SHEET 1 OF 4

GENERAL DRAWING  
FOR BRIDGE ON US311 &  
US220 BUS OVER DAN RIVER,  
NORFOLK SOUTHERN RAILWAY  
AND S. WATER ST.

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : A. SORSENGINH DATE : 6/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

SPAN D

SPAN E

SPAN F

SPAN G

SPAN H

SPAN I

EXP. EXP.

EXP. EXP.

EXP. EXP.

EXP. EXP.

EXP. EXP.

EXISTING  
GROUND  
LINENORMAL WATER  
SURFACE

BENT 4

BENT 5

BENT 6

BENT 7

BENT 8

SECTION ALONG  $\text{CL}$  ROADWAY $\text{CL}$  JOINT  
@ BENT 4 $\text{CL}$  JOINT  
@ BENT 5 $\text{CL}$  JOINT  
@ BENT 6 $\text{CL}$  JOINT  
@ BENT 7 $\text{CL}$  JOINT  
@ BENT 8 $\text{CL}$  ORIGINAL  
SURVEY90°-00'-00"  
TO TAN. (TYP.)

TO SR 1151

TO SR 1145

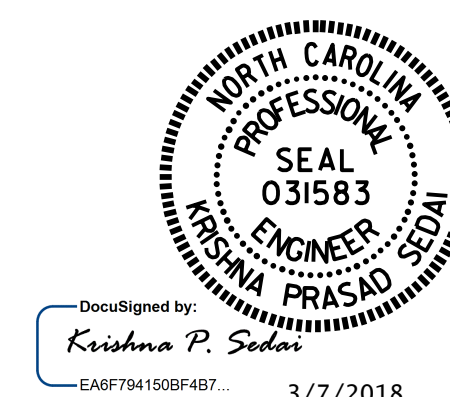
DAN RIVER

87'-6" (ALONG ARC)  
(SPAN D)87'-6" (ALONG ARC)  
(SPAN E)87'-6" (ALONG ARC)  
(SPAN F)  
1,018'-9" (FILL FACE TO FILL FACE) (ALONG ARC & TANGENT)87'-6" (ALONG ARC)  
(SPAN G)87'-6" (ALONG ARC)  
(SPAN H)87'-6" (ALONG ARC)  
(SPAN I)

PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGHGENERAL DRAWING  
FOR BRIDGE ON US311 &  
US220 BUS OVER DAN RIVER,  
NORFOLK SOUTHERN RAILWAY  
AND S. WATER ST.DRAWN BY : A. SORSENGINH DATE : 6/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			56

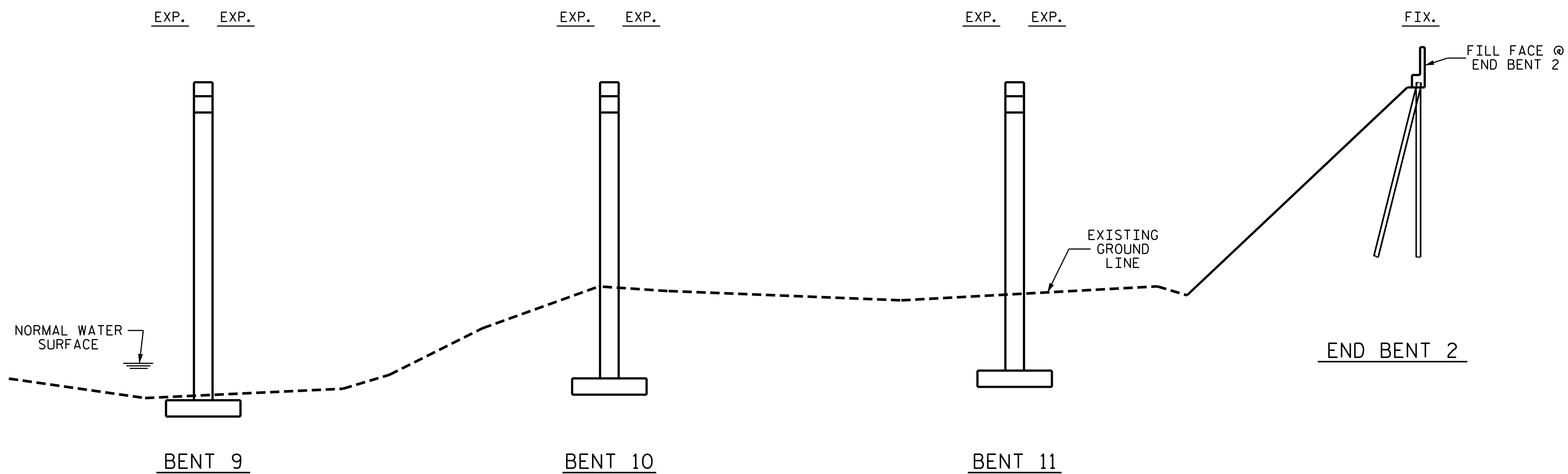
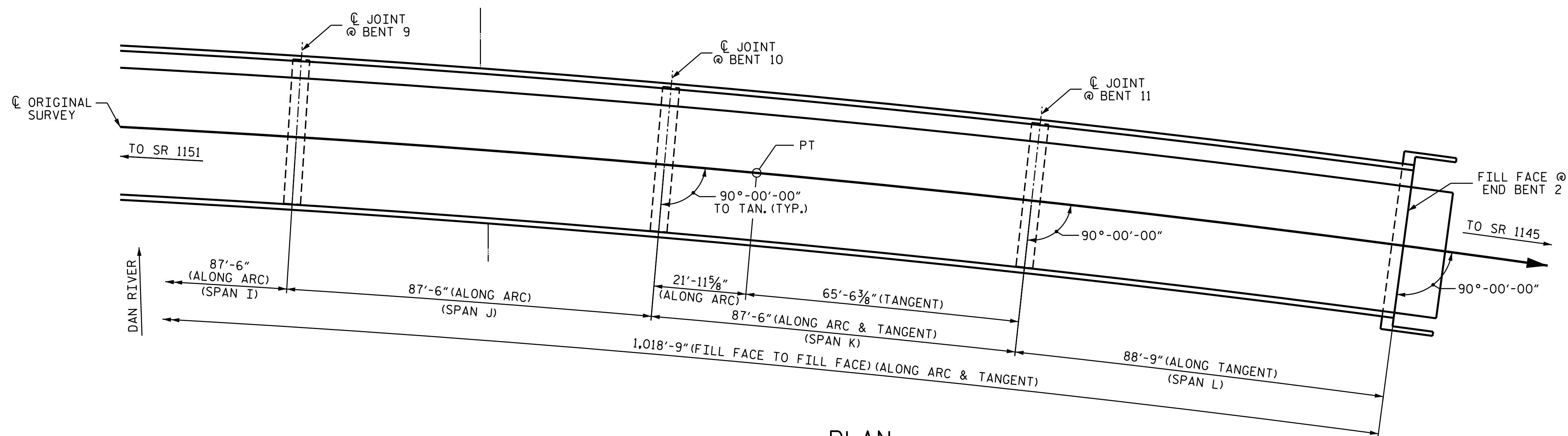


SPAN I

SPAN J

SPAN K

SPAN L

SECTION ALONG  $\text{CL}$  ROADWAY

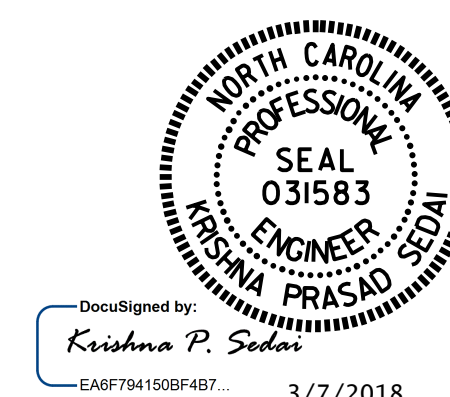
## PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GENERAL DRAWING  
FOR BRIDGE ON US311 &  
US220 BUS OVER DAN RIVER,  
NORFOLK SOUTHERN RAILWAY  
AND S. WATER ST.



DRAWN BY : A. SORSENGINH DATE : 6/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			56





LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

TOTAL BILL OF MATERIAL

BRIDGE NO. 30	GROOVING BRIDGE FLOORS	CLASS II SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	SILICONE JOINT SEALANT	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY COATING	CONCRETE DECK REPAIR FOR PPC OVERLAY	PLACING & FINISHING PPC OVERLAY	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	TYPE I BRIDGE JACKING BRIDGE NO.---
	SQ. FT.	SQ. YDS.	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LIN. FT.	CU. YDS.	SQ. FT.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	EA.
TOTAL	27,832	* 5.0	39.3	4,219.6	185	LUMP SUM	62.7	119.9	785.1	* 5.0	3,464	3464	3,464	12

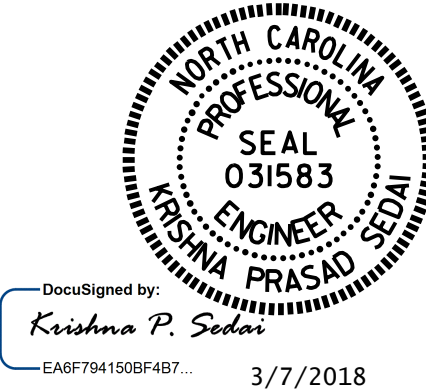
\* CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS II AREAS ARE ENCOUNTERED.

NOTES

- EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- THE EXISTING BRIDGE DECK SHALL BE REPAIRED AT LOCATIONS INDICATED ON THE PLANS OR AS DETERMINED BY THE ENGINEER, EXISTING BRIDGE CONCRETE DECK SHALL BE REPAIRED AFTER SCARIFICATION, BUT PRIOR TO SHOTBLASTING AND APPLICATION OF POLYESTER POLYMER CONCRETE (PPC) OVERLAY, UNLESS OTHERWISE PERMITTED, REPAIRS SHALL BE COMPLETED WITH PPC.
- FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.
- FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS, PLACING AND FINISHING PPC OVERLAY, SEE POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISION.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.
- FOR SILICONE JOINT SEALANT, SEE SPECIAL PROVISION.
- FOR POLYESTER POLYMER CONCRETE DECK OVERLAY, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING, SEE STANDARD SPECIFICATION SECTION 420-18.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR SPECIAL PROVISIONS FOR PROTECTION OF RAILROAD INTEREST, SEE SPECIAL PROVISIONS.
- FOR OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

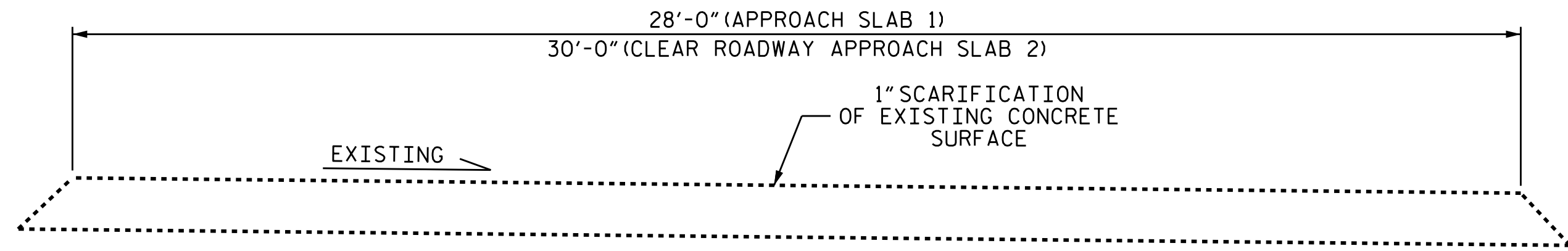
SHEET 4 OF 4



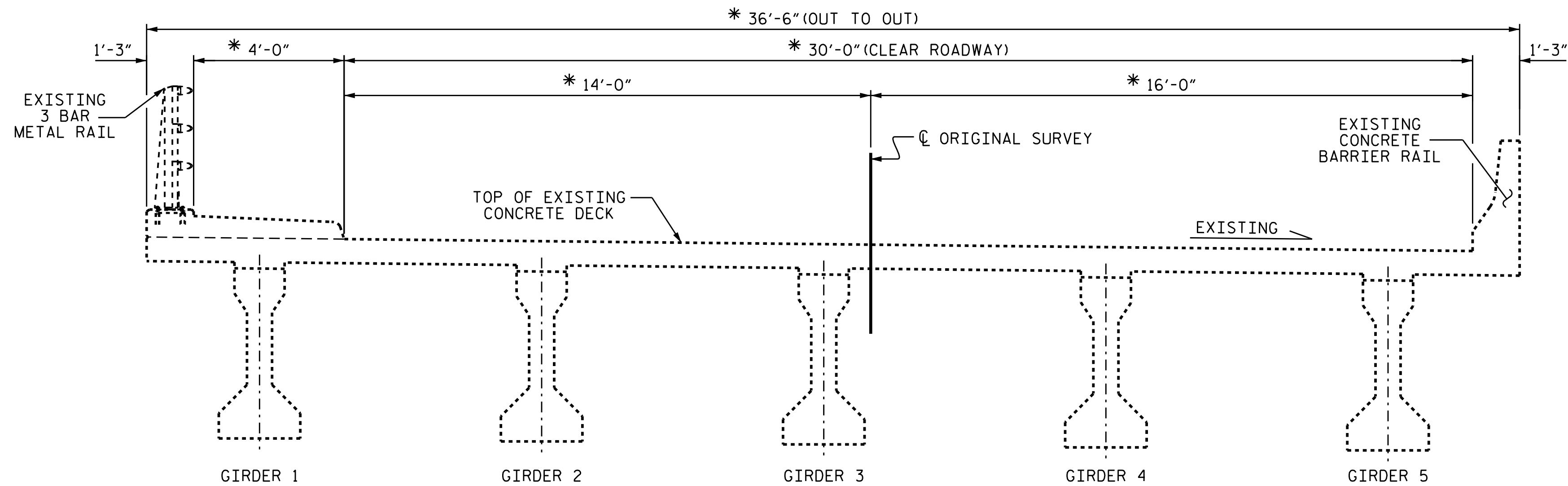
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE ON US311 & US220 BUS OVER DAN RIVER, NORFOLK SOUTHERN RAILWAY AND S. WATER ST.					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					S-4 TOTAL SHEETS 56

DRAWN BY : A. SORSENGINH DATE : 6/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

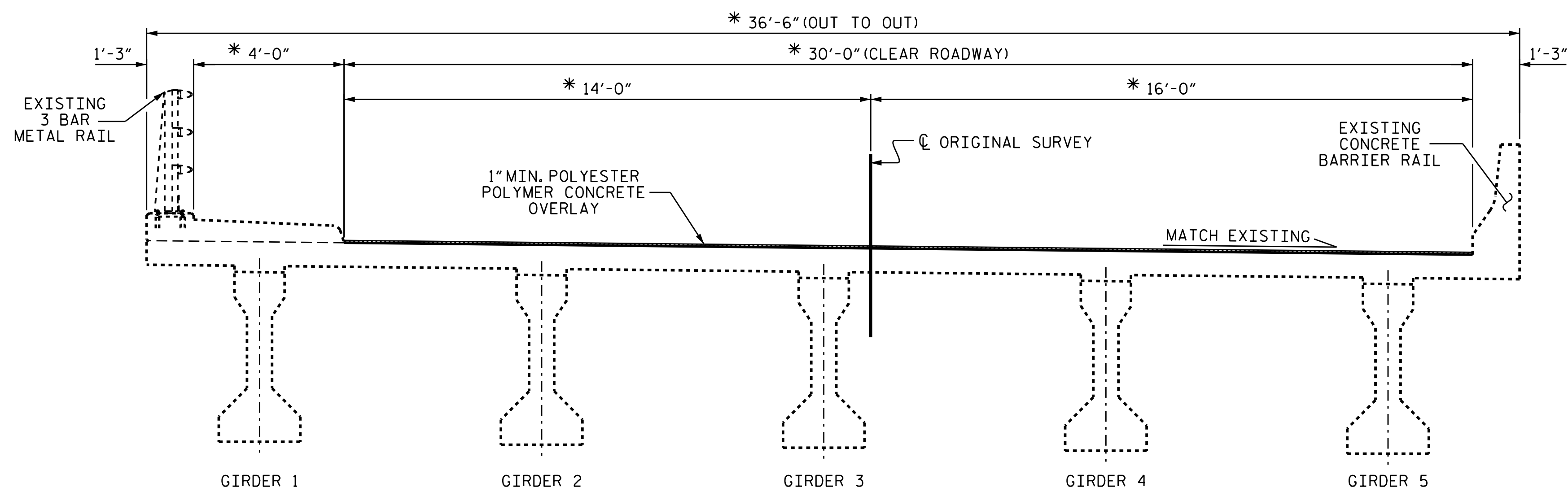




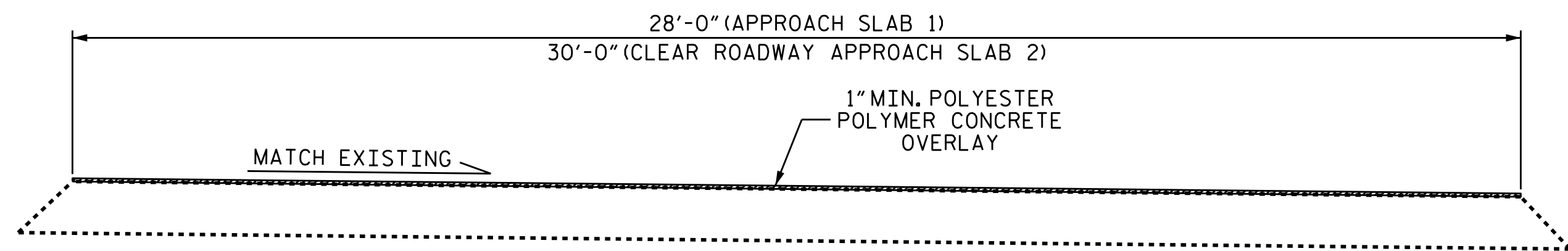
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(EXISTING)



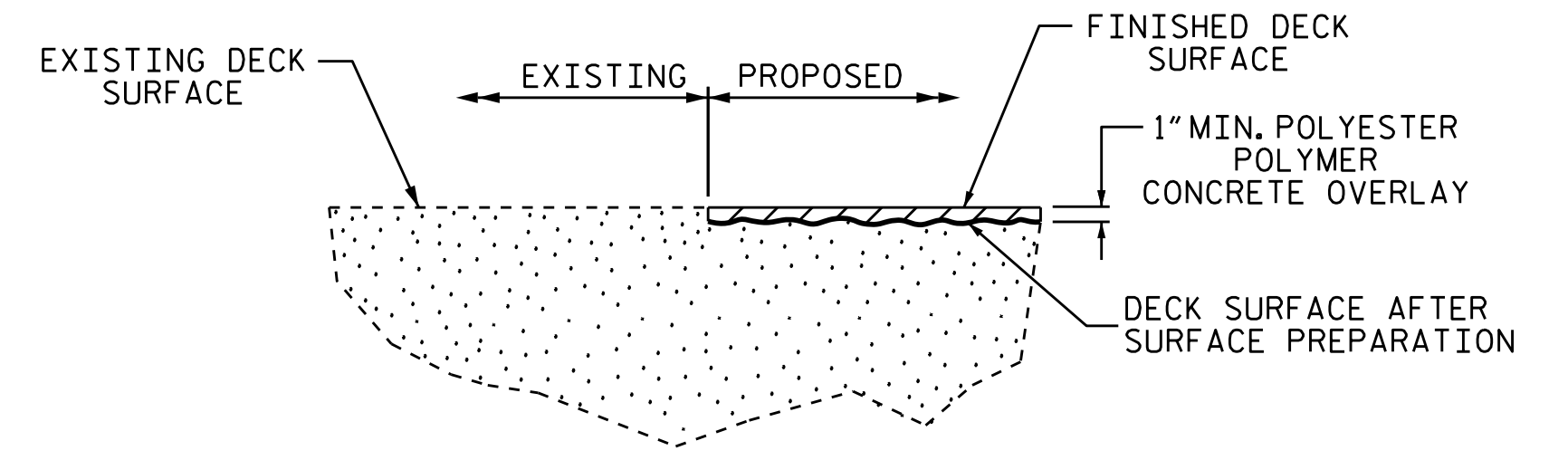
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\* RADIAL DIMENSION



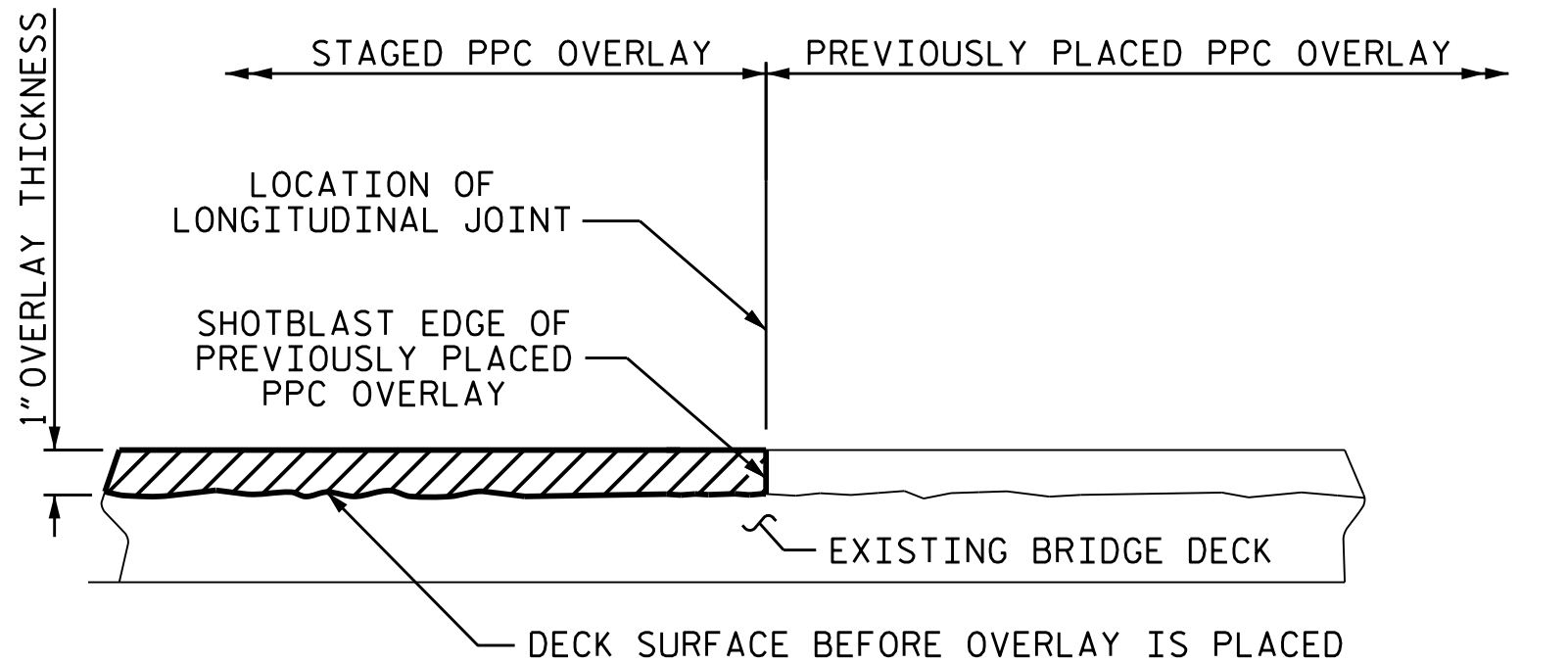
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(PROPOSED)



TYPICAL SECTION - APPROACH SLAB  
(PROPOSED)

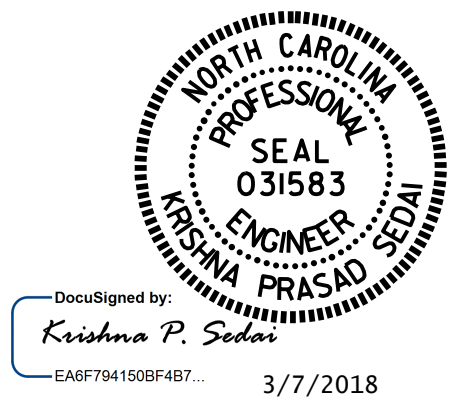


DETAIL OF PPC OVERLAY



STAGED PPC OVERLAY JOINT  
(AS NEEDED)

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

TYPICAL SECTION &  
SURFACE PREPARATION  
DETAILS

DRAWN BY : A. SORSENGINH DATE : 4/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			56

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SIGNATURES COMPLETED




AS-BUILT REPAIR QUANTITY TABLE				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	328 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	328 SY			
PPC MATERIALS	11.4 CY			
PLACING AND FINISHING PPC OVERLAY	328 SY			
GROOVING BRIDGE FLOORS	2,614 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN A	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.8	0.4		

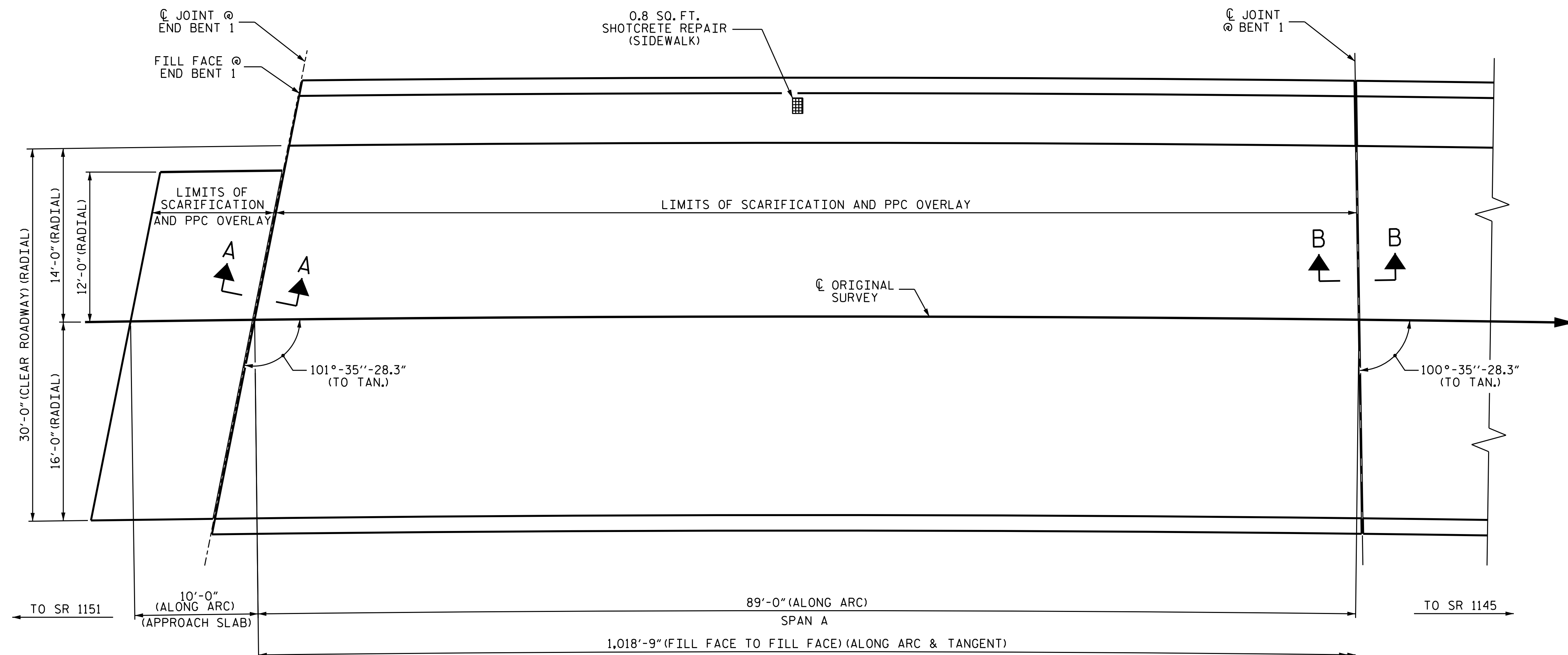
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

 APPROX. CLASS II SURFACE PREPARATION  
 CURB, RAIL AND SIDEWALK REPAIR  
 ERI - EPOXY RESIN INJECTION



## PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
 BRIDGE NO. 30


SHEET 1 OF 12

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

## PLAN OF SPAN A AND APPROACH SLAB

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

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SIGNATURES COMPLETED



DocuSigned by:  
*Krishna P. Sedai*  
EA6F794150BF4B7... 3/7/2018

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			56






AS-BUILT REPAIR QUANTITY TABLE				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	179 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	179 SY			
PPC MATERIALS	6.2 CY			
PLACING AND FINISHING PPC OVERLAY	179 SY			
GROOVING BRIDGE FLOORS	1,433 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN B	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

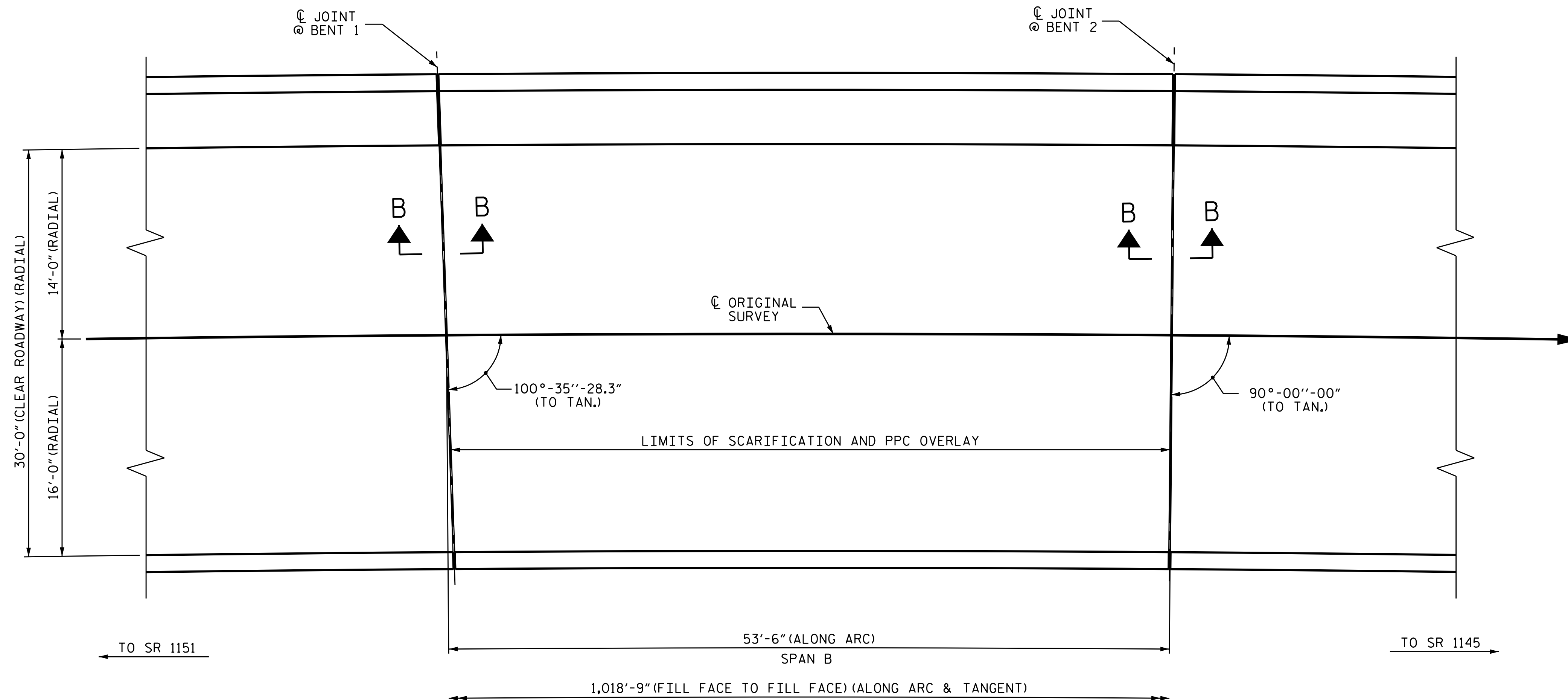
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

 APPROX. CLASS II SURFACE PREPARATION  
 CURB, RAIL AND SIDEWALK REPAIR  
 ERI - EPOXY RESIN INJECTION



## PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
 BRIDGE NO. 30


SHEET 2 OF 12

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN B

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



DocuSigned by:  
*Krishna P. Sedai*  
EA6F941506BF4E7... 3/7/2018

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			56



AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	292 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	292 SY			
PPC MATERIALS	10.1 CY			
PLACING AND FINISHING PPC OVERLAY	292 SY			
GROOVING BRIDGE FLOORS	2,351 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN C	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	3.2	1.6		

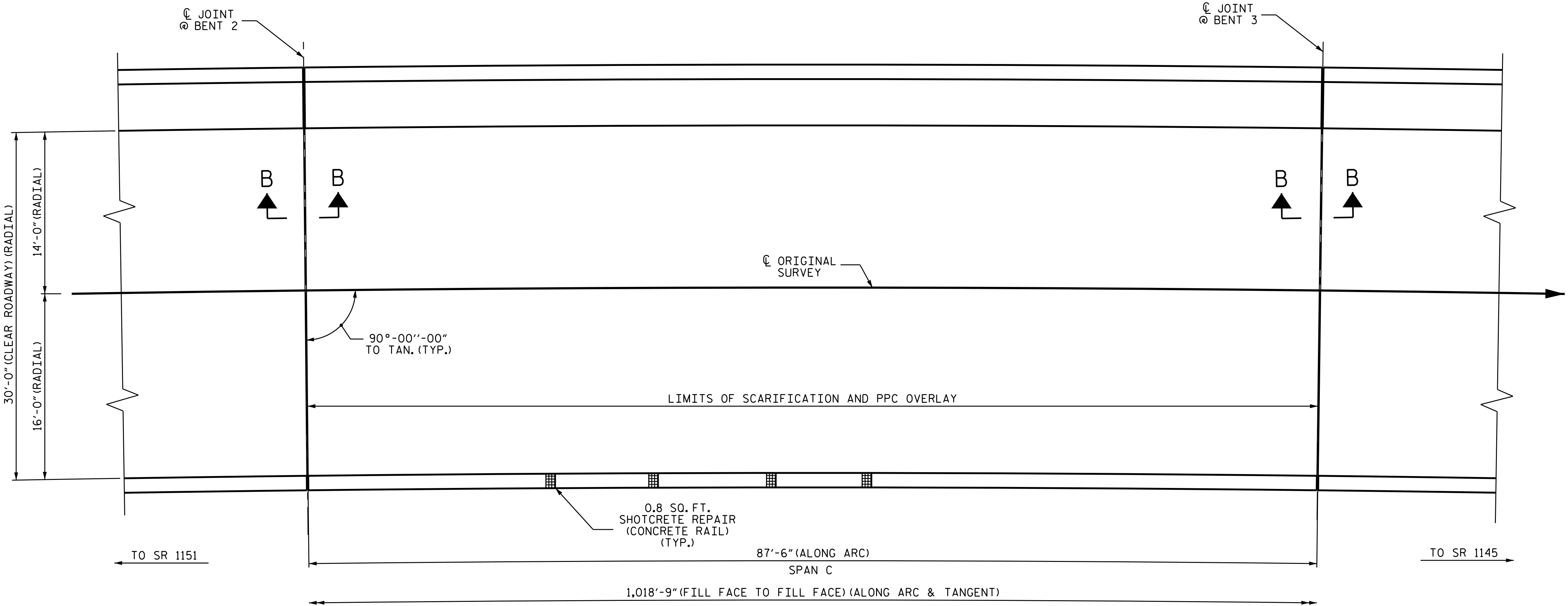
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

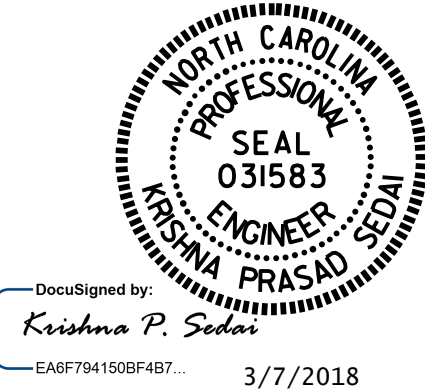
- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 3 OF 12



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN C

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			TOTAL SHEETS 56



AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	292 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	292 SY			
PPC MATERIALS	10.1 CY			
PLACING AND FINISHING PPC OVERLAY	292 SY			
GROOVING BRIDGE FLOORS	2,351 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN D	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

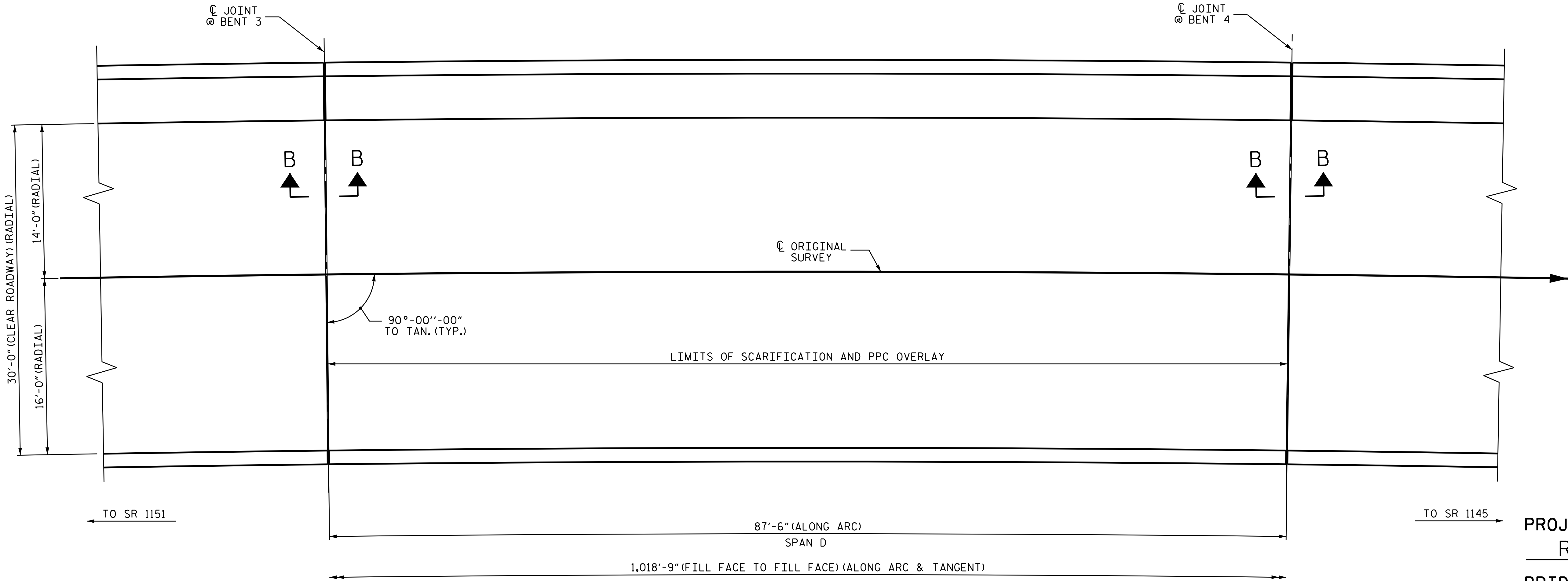
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

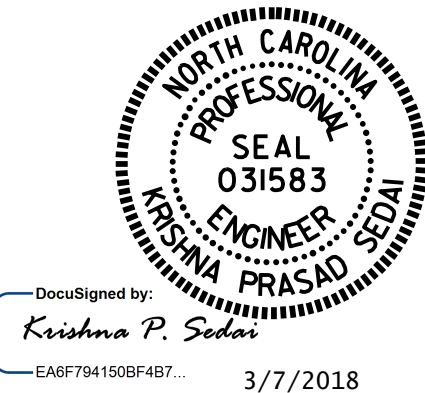
- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 4 OF 12



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN D

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			56



AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	292 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	292 SY			
PPC MATERIALS	10.1 CY			
PLACING AND FINISHING PPC OVERLAY	292 SY			
GROOVING BRIDGE FLOORS	2,351 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN E	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

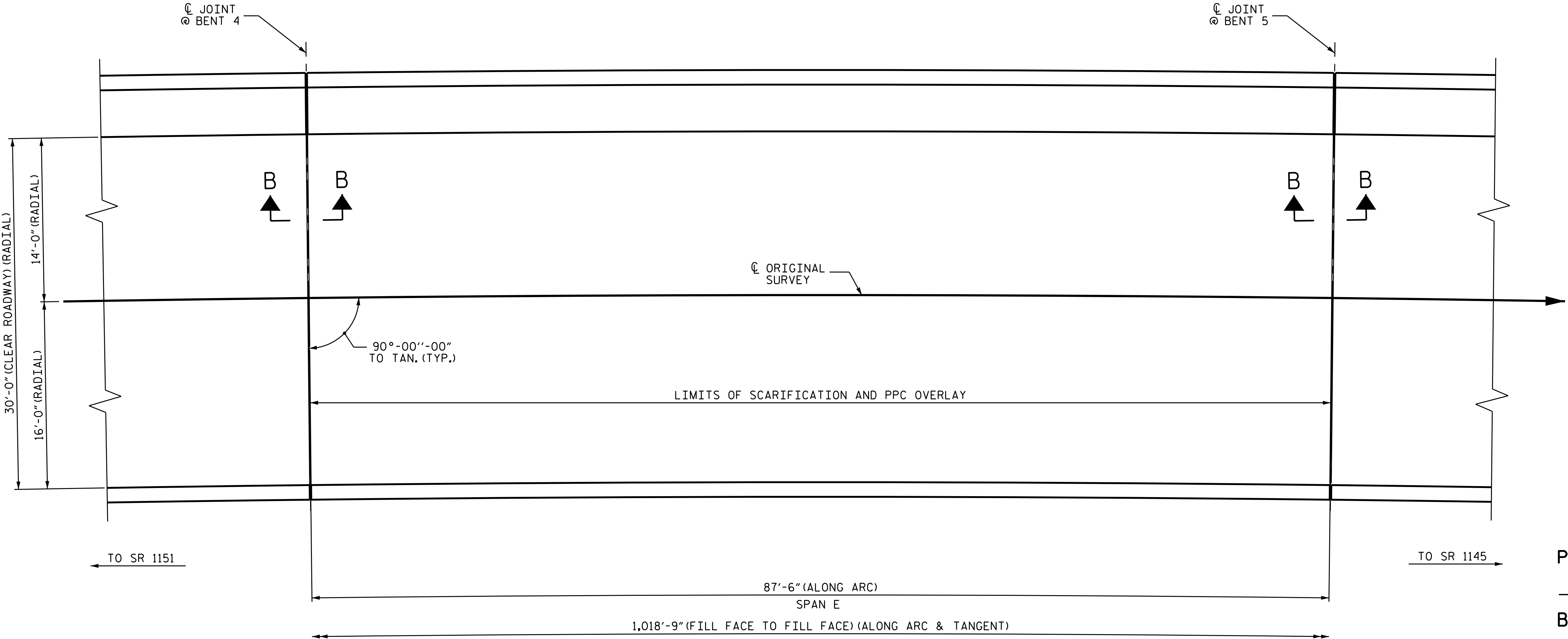
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

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FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

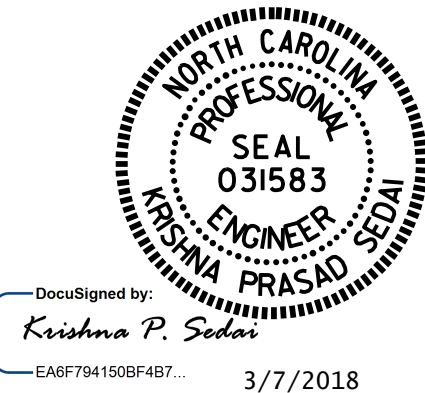
- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 5 OF 12



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
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PLAN OF SPAN E

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1			3			S-10
2			4			TOTAL SHEETS 56






AS-BUILT REPAIR QUANTITY TABLE				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	292 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	292 SY			
PPC MATERIALS	10.1 CY			
PLACING AND FINISHING PPC OVERLAY	292 SY			
GROOVING BRIDGE FLOORS	2,351 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN F	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

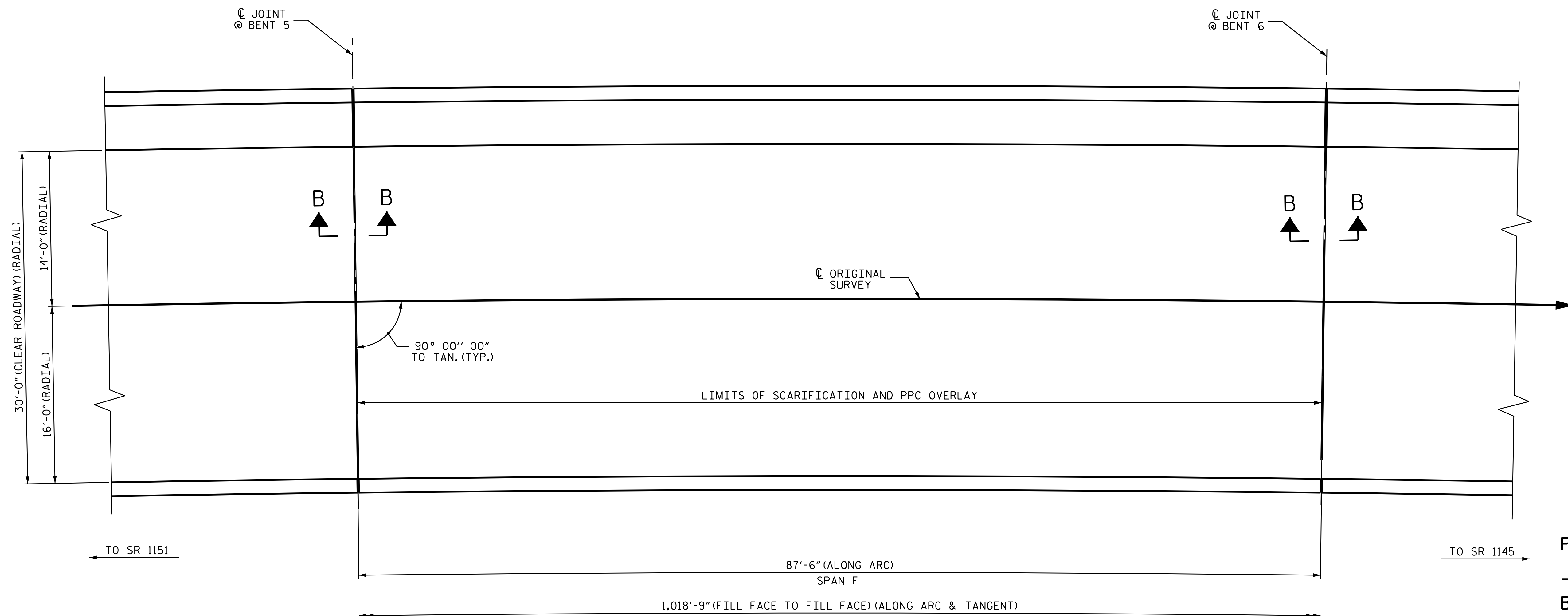
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

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FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

 APPROX. CLASS II SURFACE PREPARATION  
 CURB, RAIL AND SIDEWALK REPAIR  
 ERI - EPOXY RESIN INJECTION



## PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
 BRIDGE NO. 30


SHEET 6 OF 12

STATE OF NORTH CAROLINA  
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DocuSigned by:  
*Krishna P. Sedai*  
EA8F794150BF4B7... 3/7/2018

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			56



AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	292 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	292 SY			
PPC MATERIALS	10.1 CY			
PLACING AND FINISHING PPC OVERLAY	292 SY			
GROOVING BRIDGE FLOORS	2,351 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN G	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

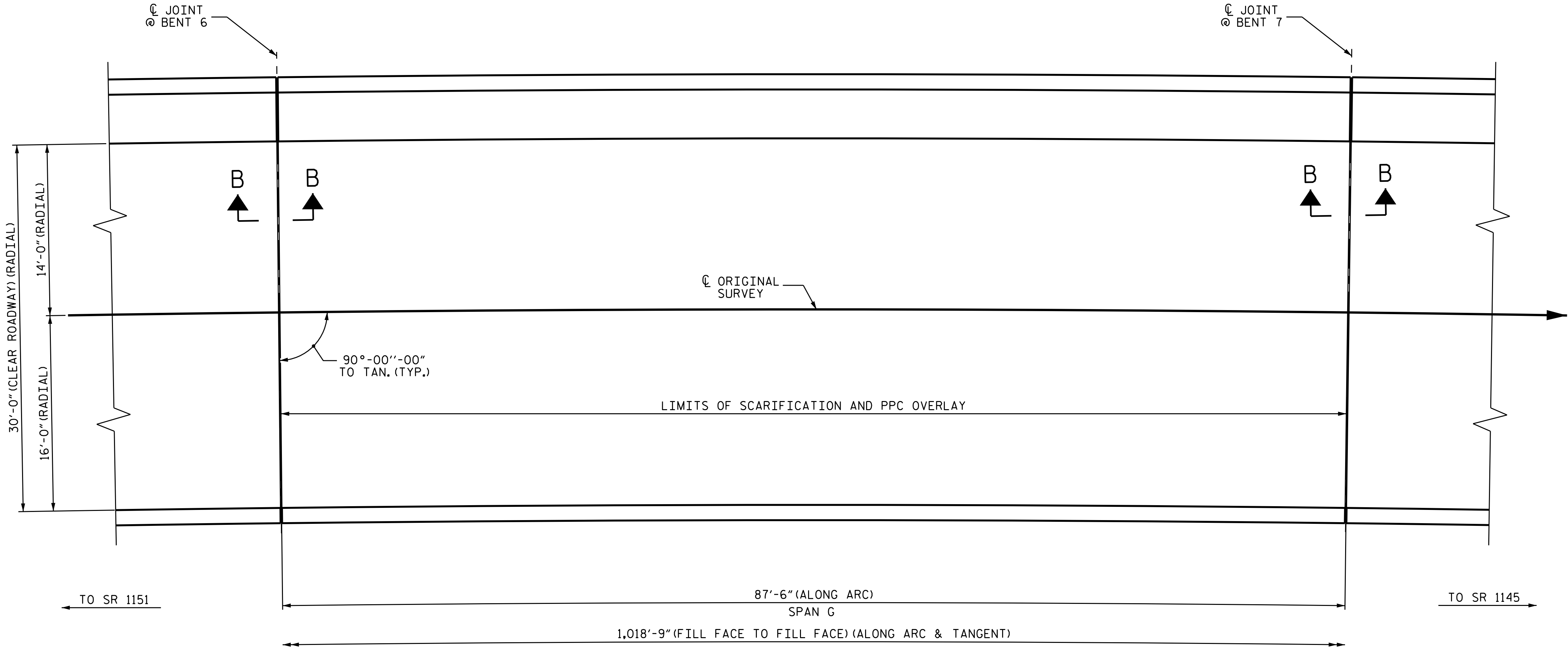
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

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FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

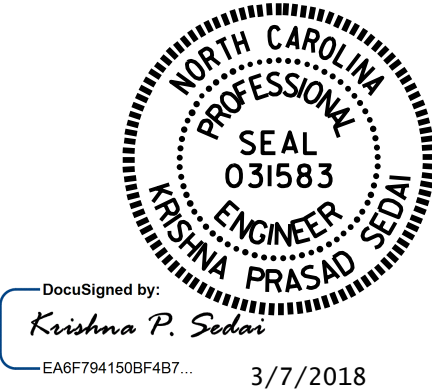
- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 7 OF 12



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1			3			TOTAL SHEETS
2			4			56

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AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	292 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	292 SY			
PPC MATERIALS	10.1 CY			
PLACING AND FINISHING PPC OVERLAY	292 SY			
GROOVING BRIDGE FLOORS	2,351 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN H	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

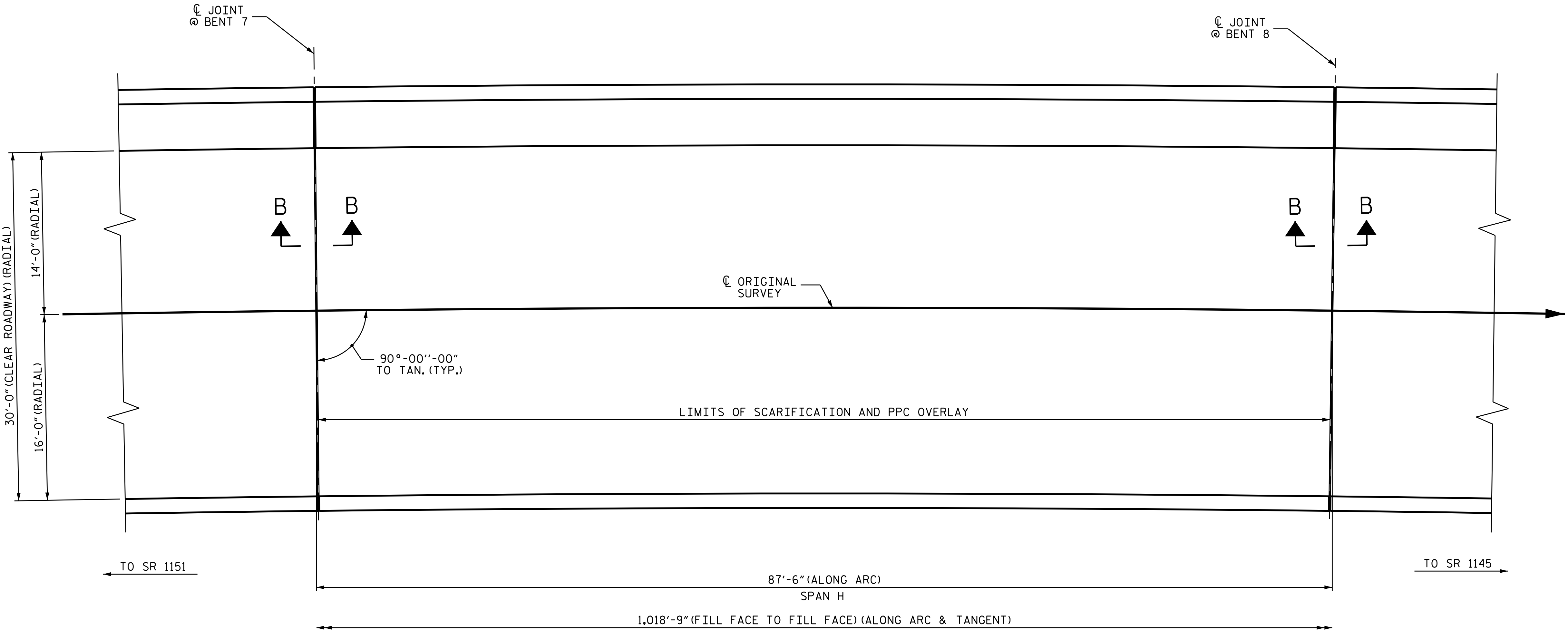
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

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FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

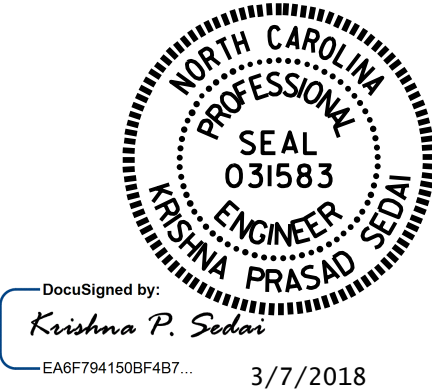
- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 8 OF 12



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN H

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 56
2			4			

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	292 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	292 SY			
PPC MATERIALS	10.1 CY			
PLACING AND FINISHING PPC OVERLAY	292 SY			
GROOVING BRIDGE FLOORS	2,351 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN I	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

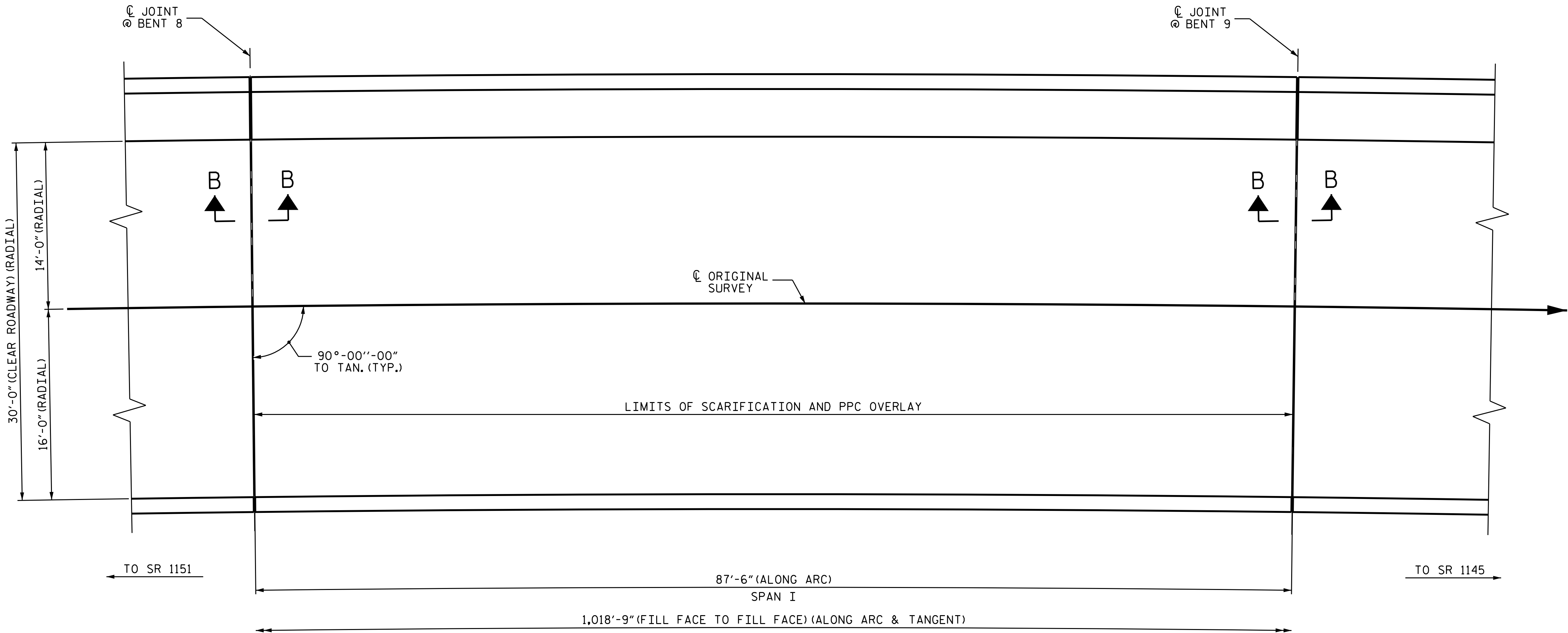
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

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FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



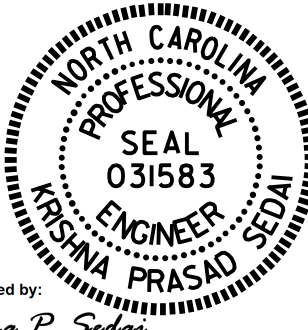
PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 9 OF 12

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN I



DocuSigned by:  
Krishna P. Sedai  
ENR6704150BF4BT... 3/7/2018

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-14
2			4			TOTAL SHEETS 56



AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS					
	ESTIMATE		ACTUAL		
SCARIFYING BRIDGE DECK	292 SY				
CLASS II SURFACE PREPARATION	0.0 SY				
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY				
SHOTBLASTING BRIDGE DECK	292 SY				
PPC MATERIALS	10.1 CY				
PLACING AND FINISHING PPC OVERLAY	292 SY				
GROOVING BRIDGE FLOORS	2,351 SF				
EPOXY RESIN INJECTION	0.0 LF				
SHOTCRETE REPAIRS SPAN J	ESTIMATE		ACTUAL		
	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0			

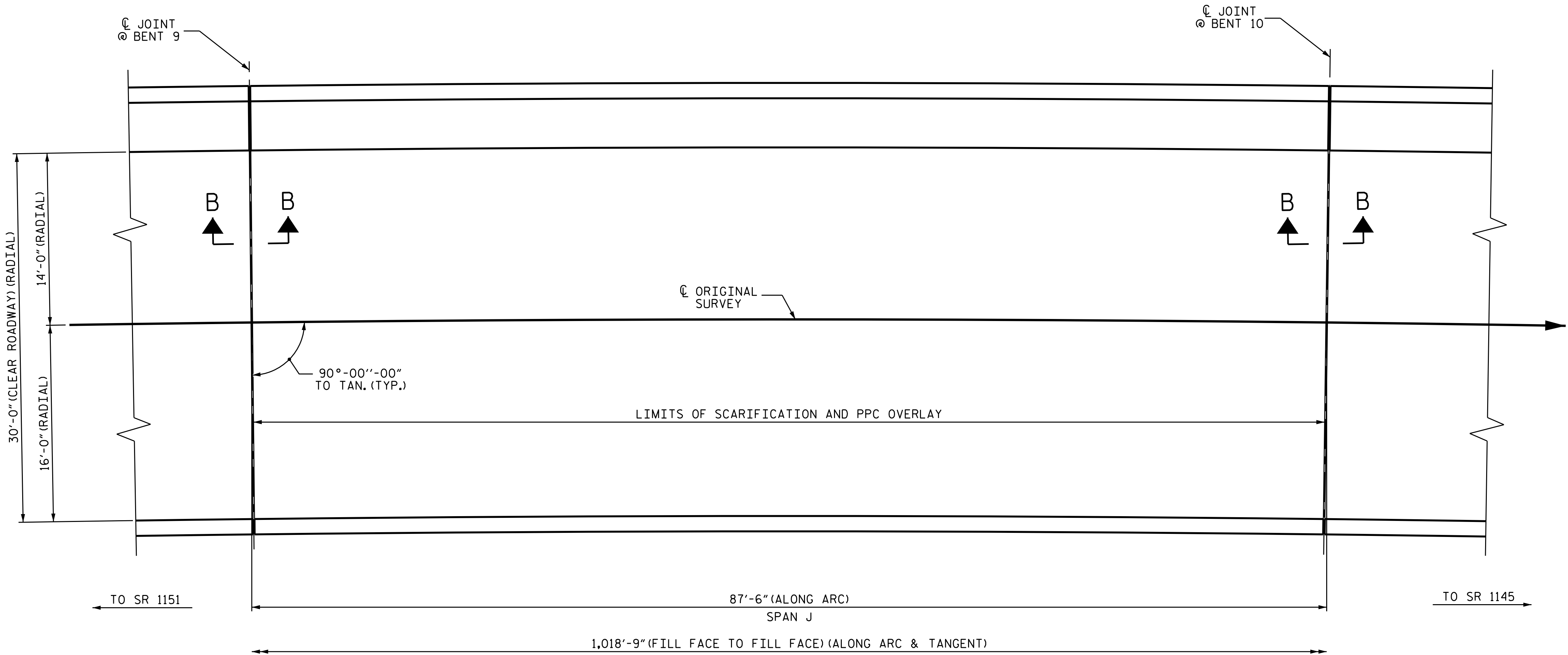
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

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FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

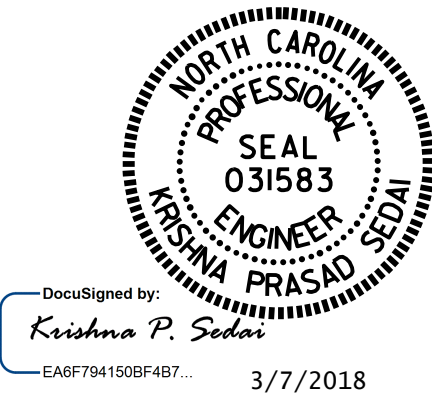
- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 10 OF 12



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN J

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-15
2			4			TOTAL SHEETS 56

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	292 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	292 SY			
PPC MATERIALS	10.1 CY			
PLACING AND FINISHING PPC OVERLAY	292 SY			
GROOVING BRIDGE FLOORS	2,351 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN K	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

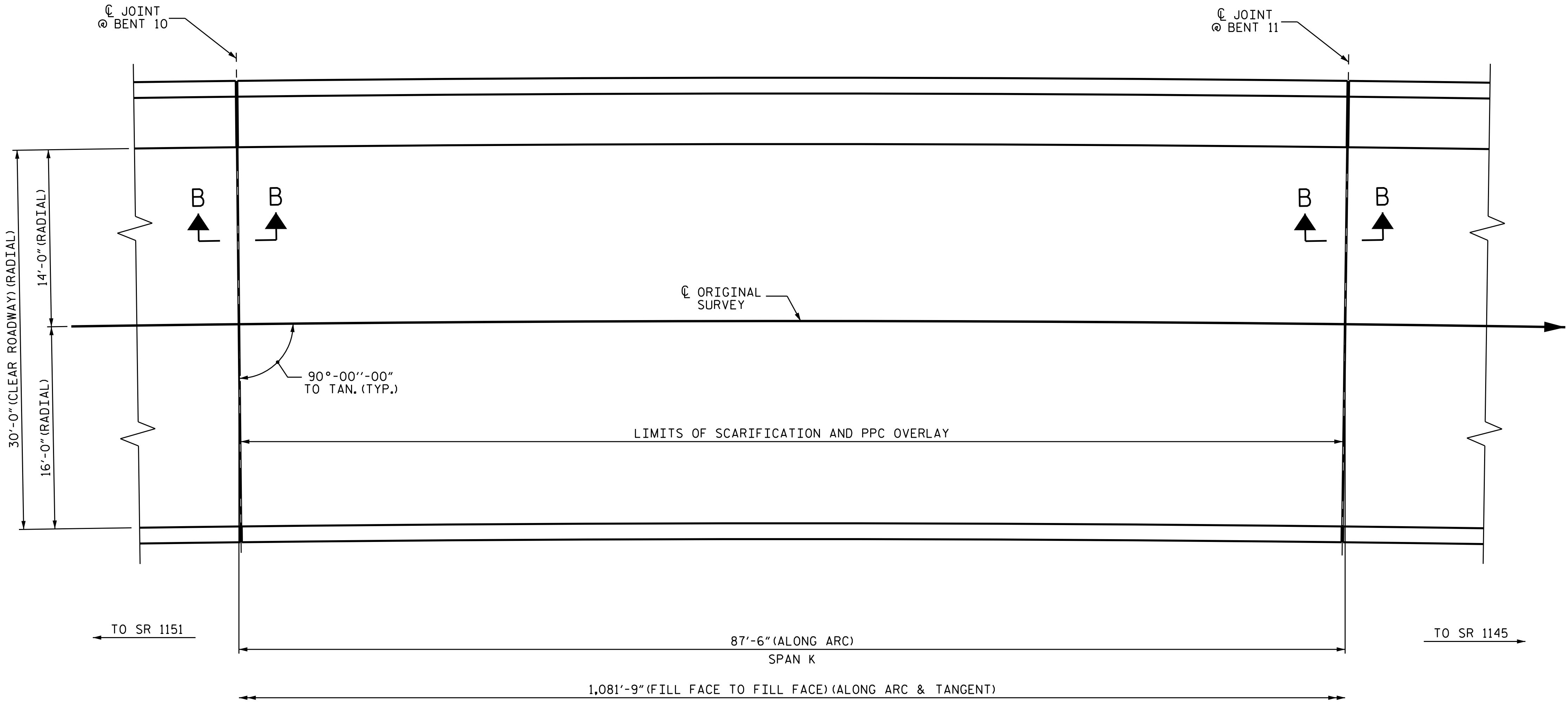
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NOTES:

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FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

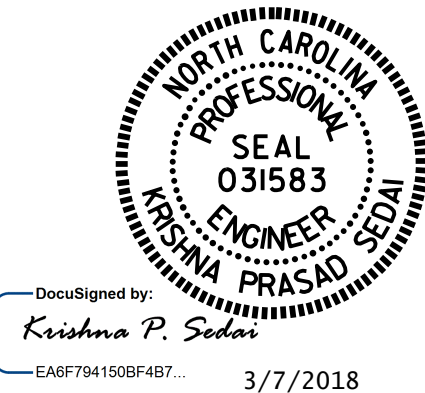
- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 11 OF 12



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN K

DRAWN BY : A. SORSENGINH DATE : 7/2017  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			56



AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	329 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY			
SHOTBLASTING BRIDGE DECK	329 SY			
PPC MATERIALS	11.4 CY			
PLACING AND FINISHING PPC OVERLAY	329 SY			
GROOVING BRIDGE FLOORS	2,626 SF			
EPOXY RESIN INJECTION	0.0 LF			
SHOTCRETE REPAIRS SPAN L	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE CURB, RAIL AND SIDEWALK	0.0	0.0		

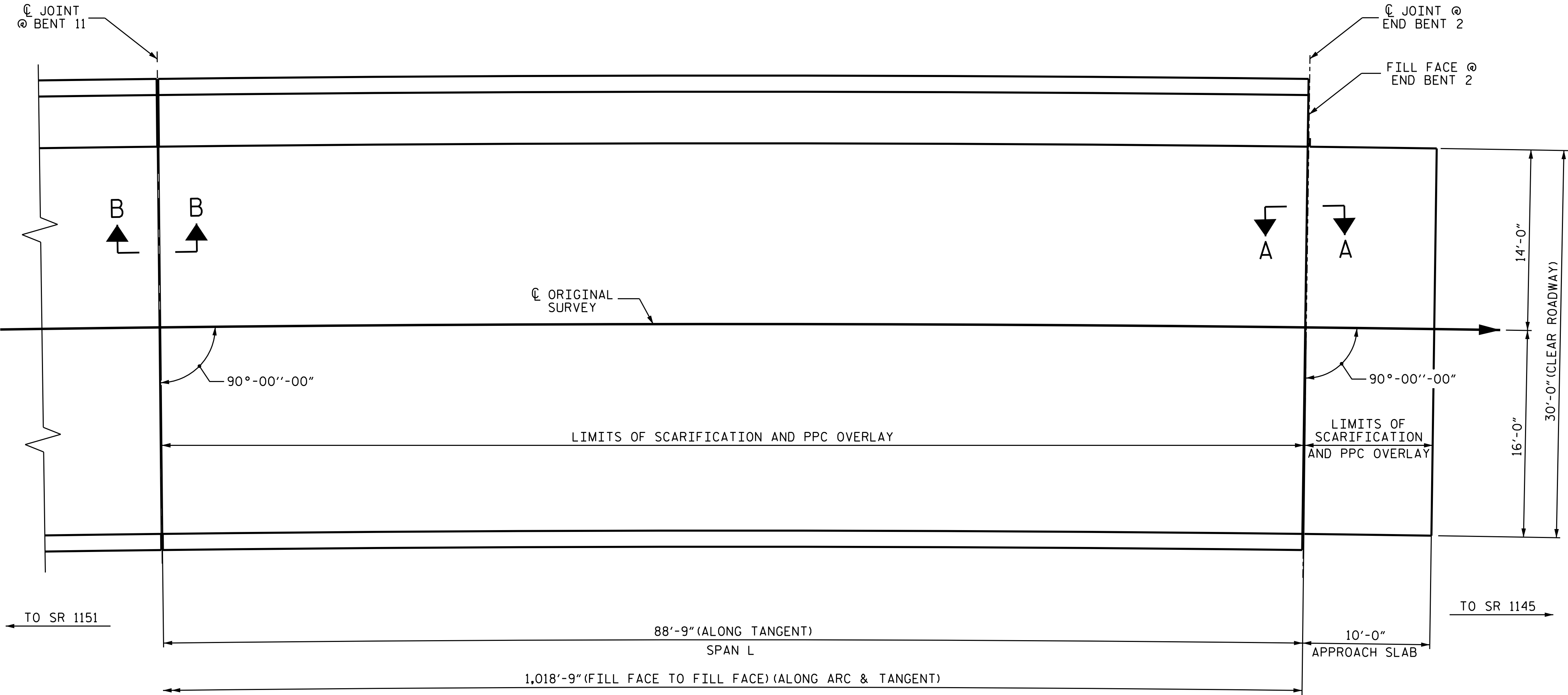
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

NOTES:

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FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

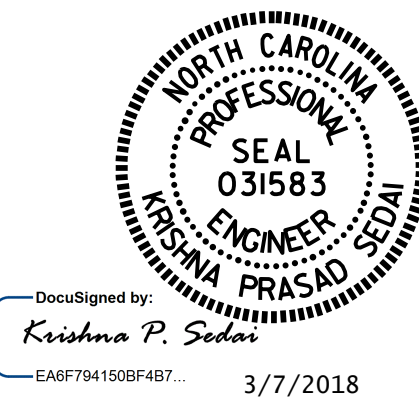
- APPROX. CLASS II SURFACE PREPARATION
- CURB, RAIL AND SIDEWALK REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 12 OF 12



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			56

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AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN A	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

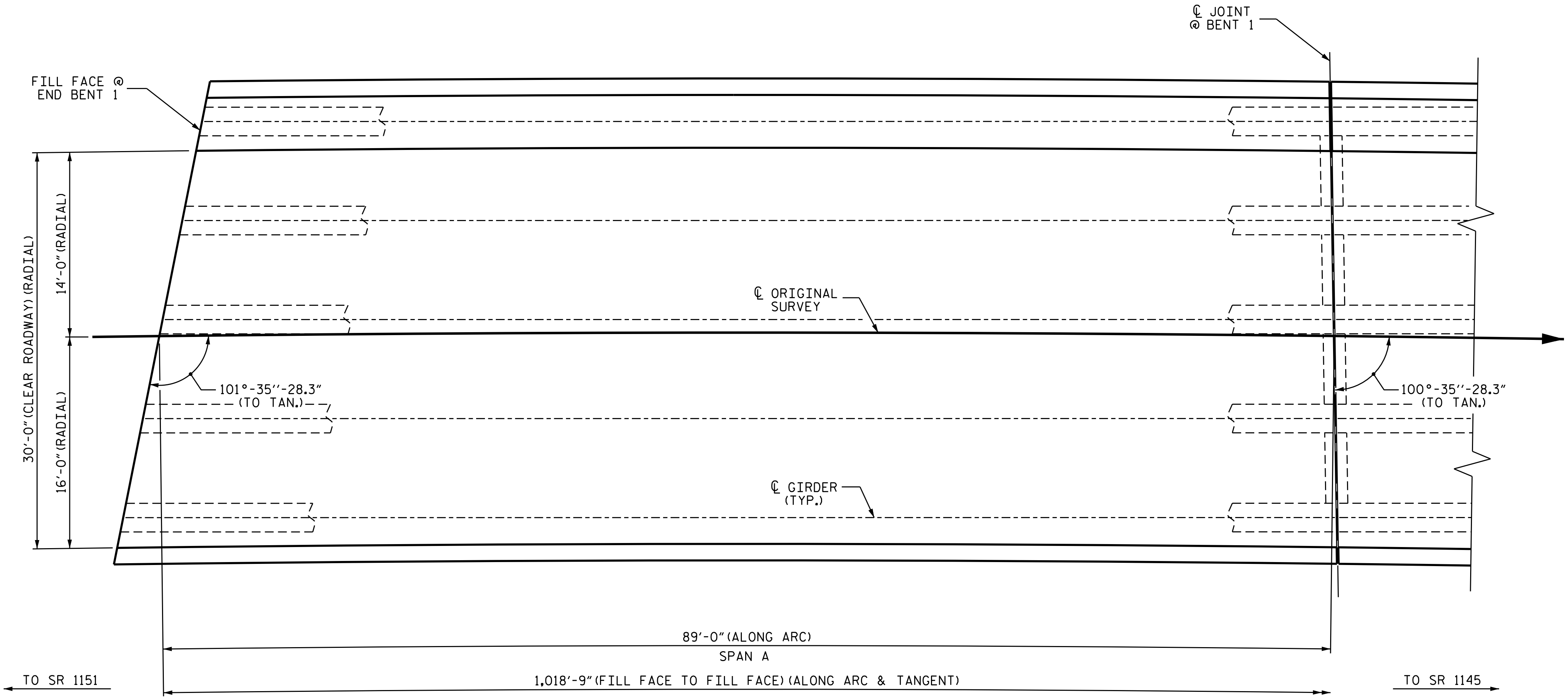
VALUES REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1"BEHIND REBAR AND MINIMUM OF 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

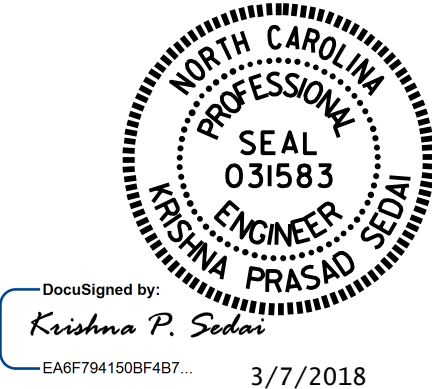
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 1 OF 12



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN A					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-18
TOTAL SHEETS					56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

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FINAL UNLESS ALL  
SIGNATURES COMPLETED



AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN B	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	4.5	1.5		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

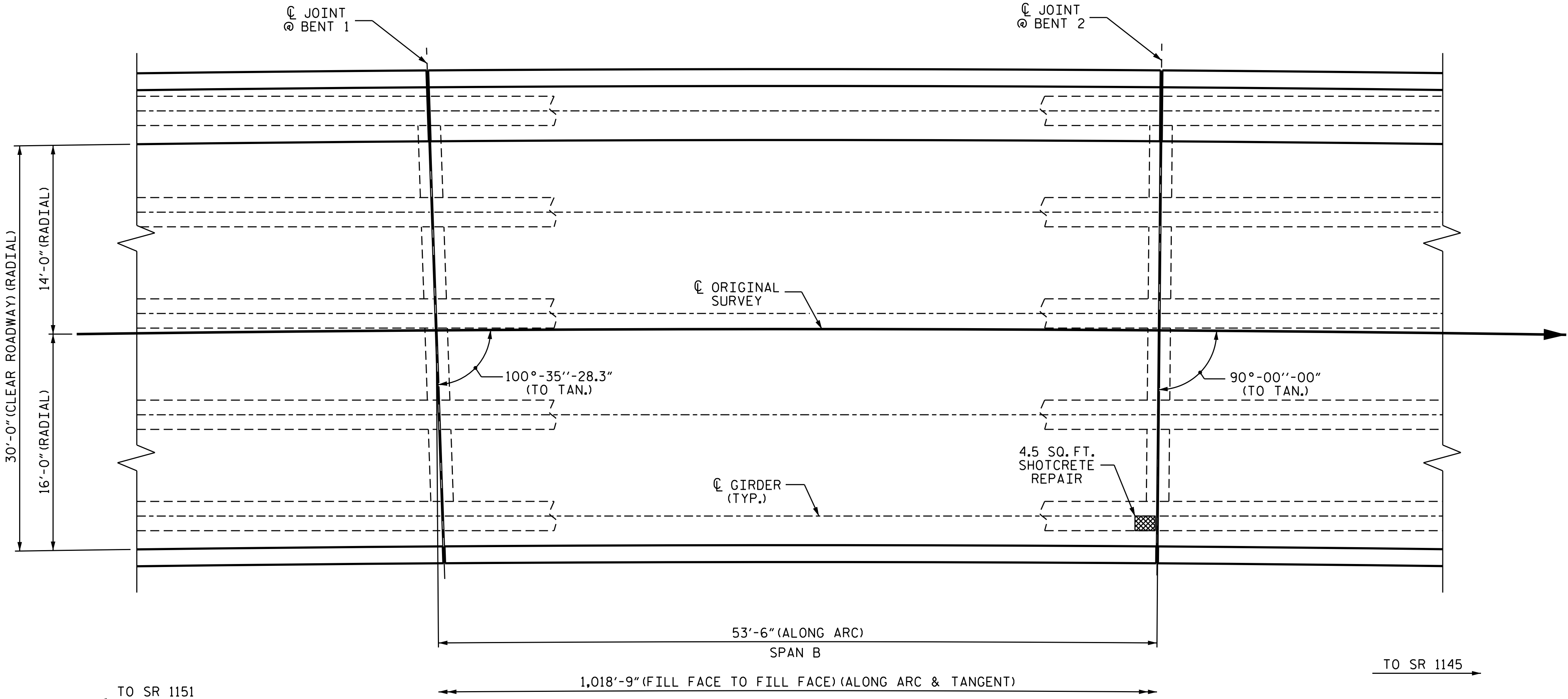
VALUES REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

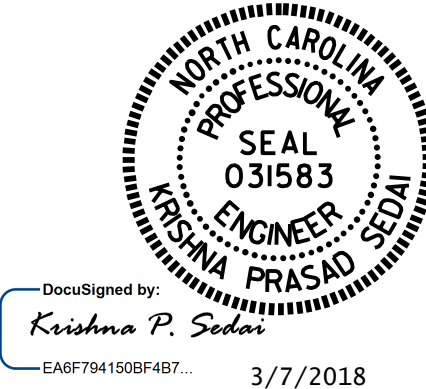
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 12



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-19
2			4			TOTAL SHEETS 56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN C	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	6.7	2.2		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

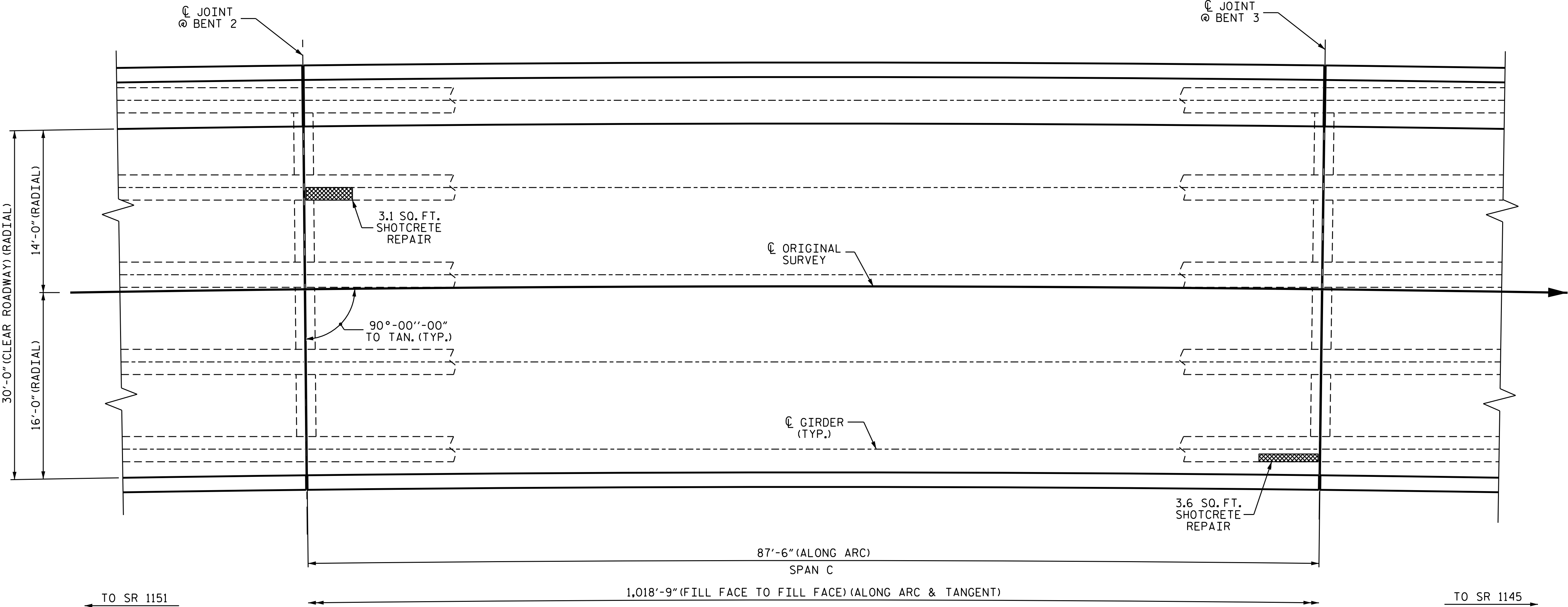
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FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

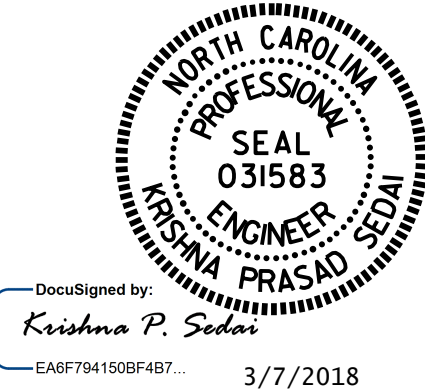
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 3 OF 12



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN C					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					TOTAL SHEETS
S-20					56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
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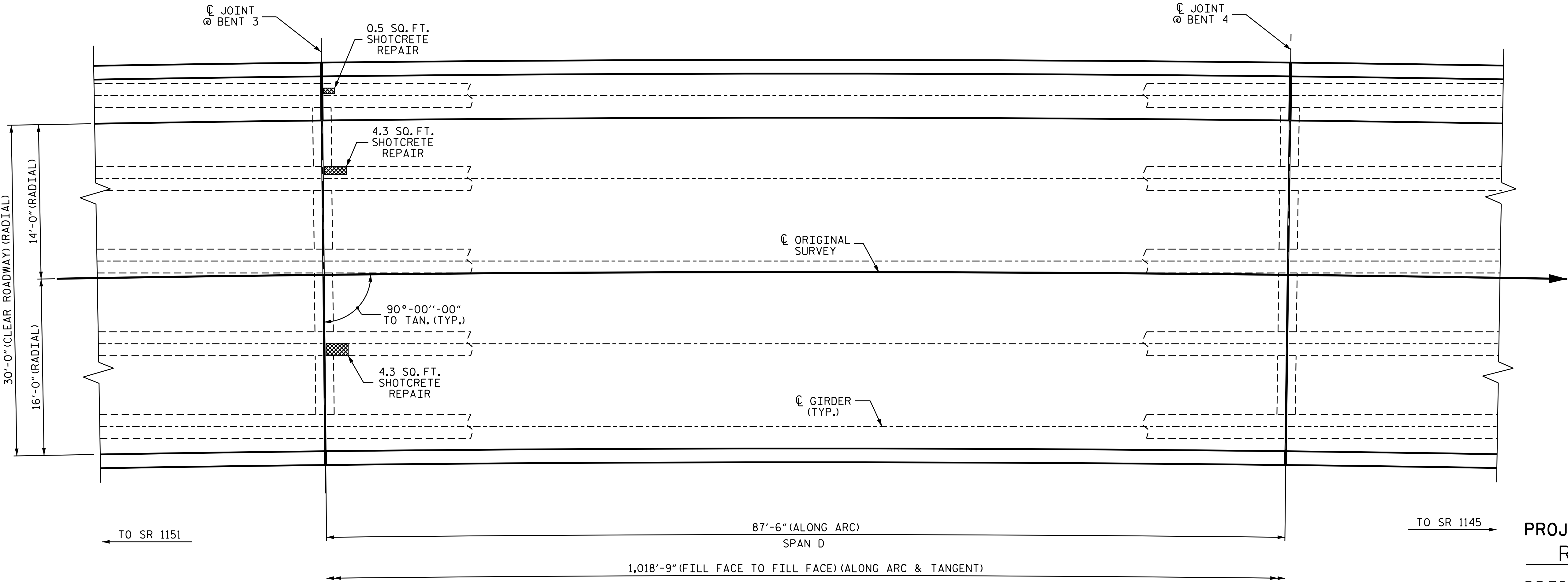
AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN D	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	9.1	3.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1"BEHIND REBAR AND MINIMUM OF 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

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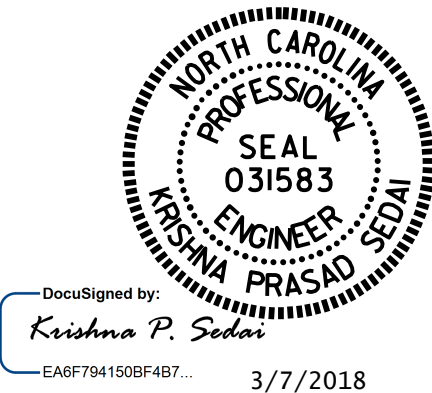
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 4 OF 12



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN D					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					SHEET NO. S-21 TOTAL SHEETS 56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN E	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

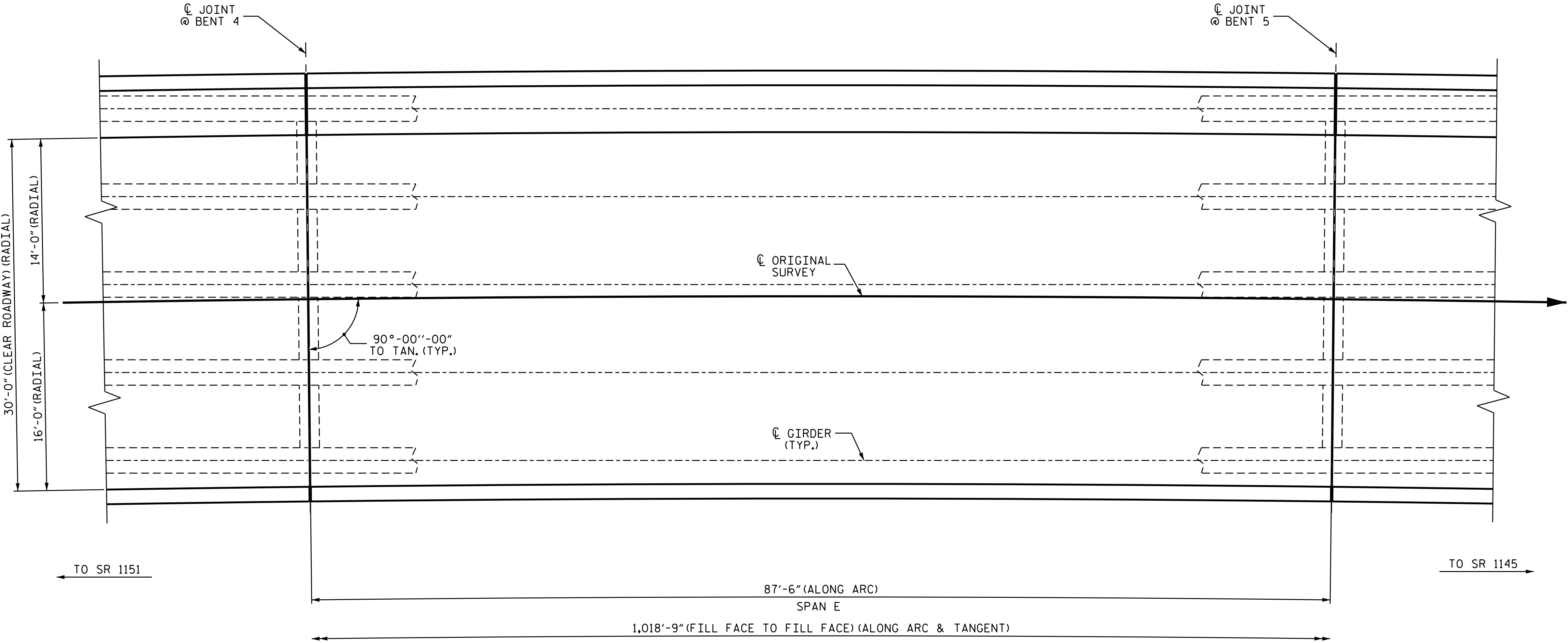
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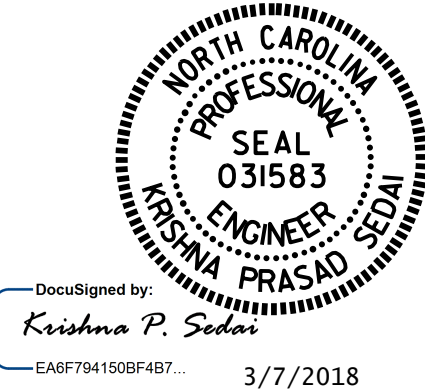
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 5 OF 12



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN E					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-22
TOTAL SHEETS					56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

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AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN F	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	12.2	4.1		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	2.0 LF			

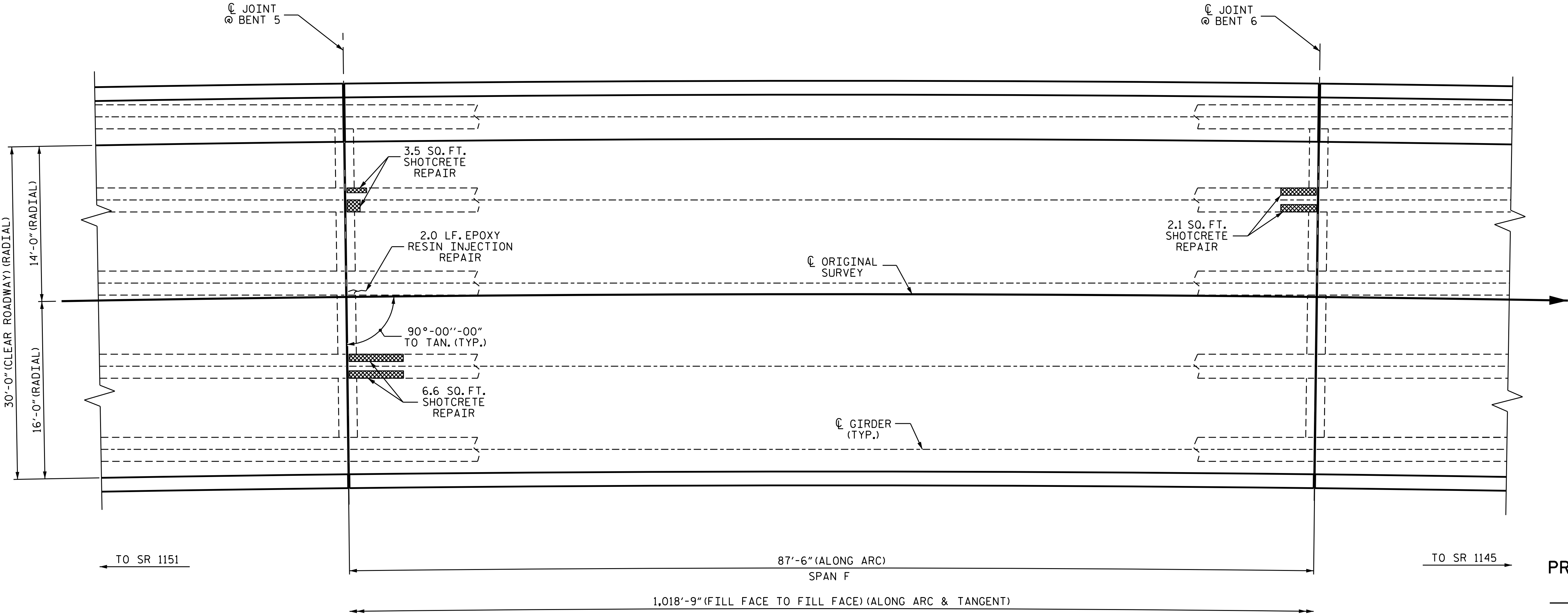
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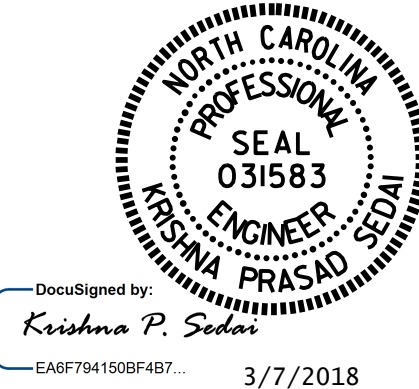
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 6 OF 12



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN F

DRAWN BY : A. SORSENGINH DATE : 7/2017  
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DOCUMENT NOT CONSIDERED  
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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-23
2			4			TOTAL SHEETS 56

AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN G	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	3.0	1.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	2.0 LF			

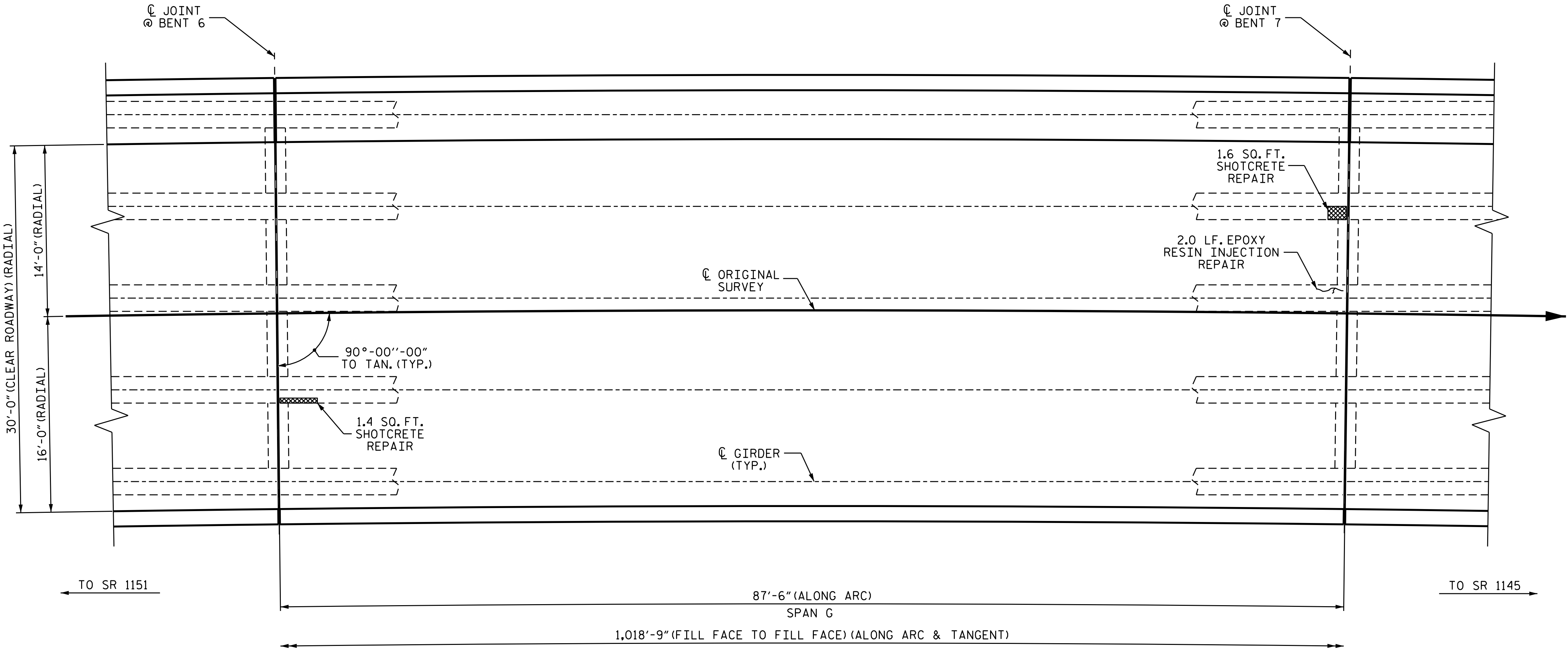
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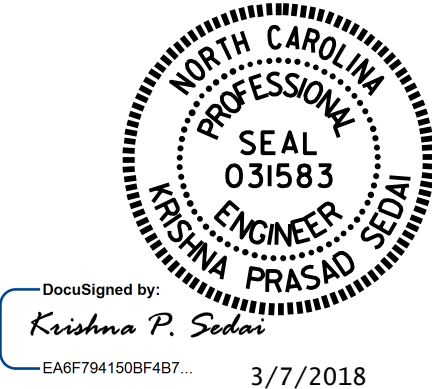
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 7 OF 12



DOCUMENT NOT CONSIDERED  
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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-24
2			4			TOTAL SHEETS 56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017



AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN H	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	2.5 LF			

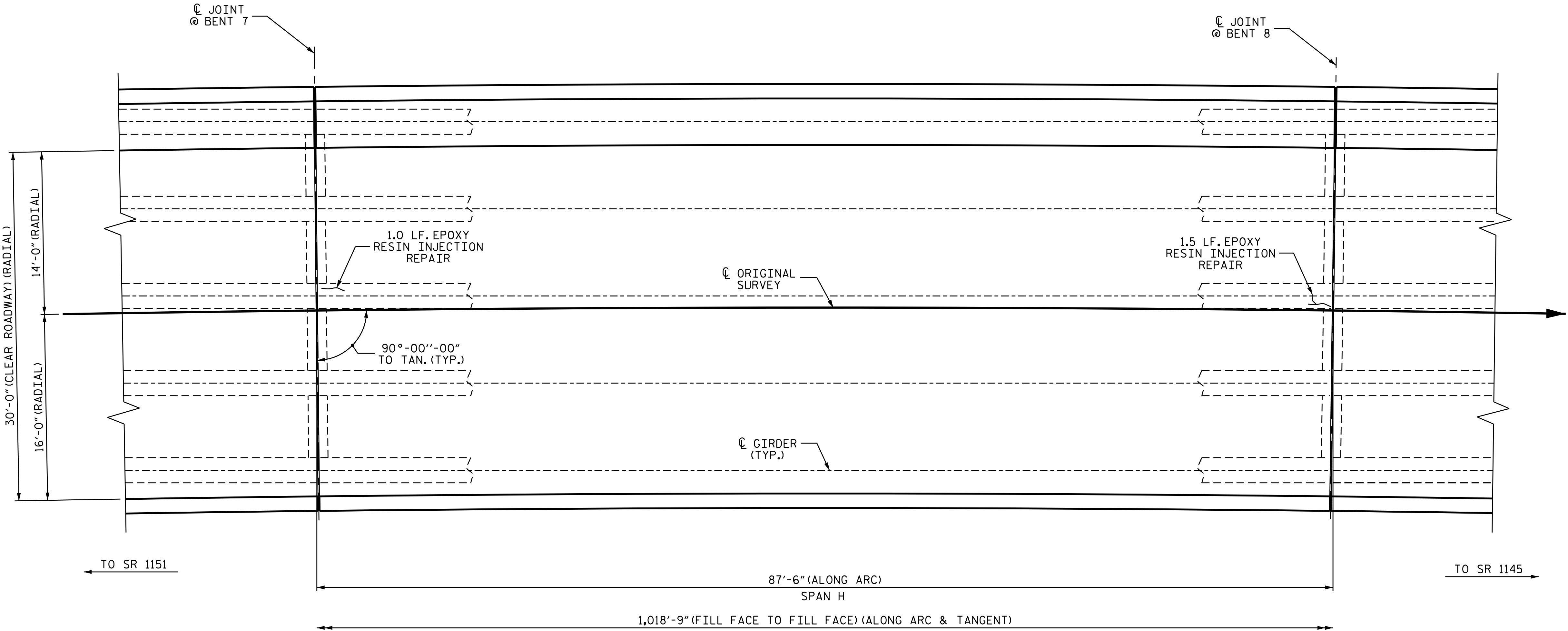
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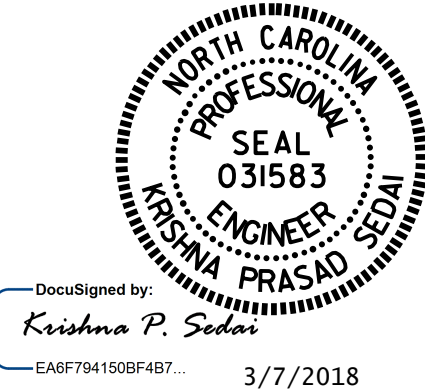
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 8 OF 12



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN H					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					TOTAL SHEETS
S-25					56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN I	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	2.0	0.7		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	1.5 LF			

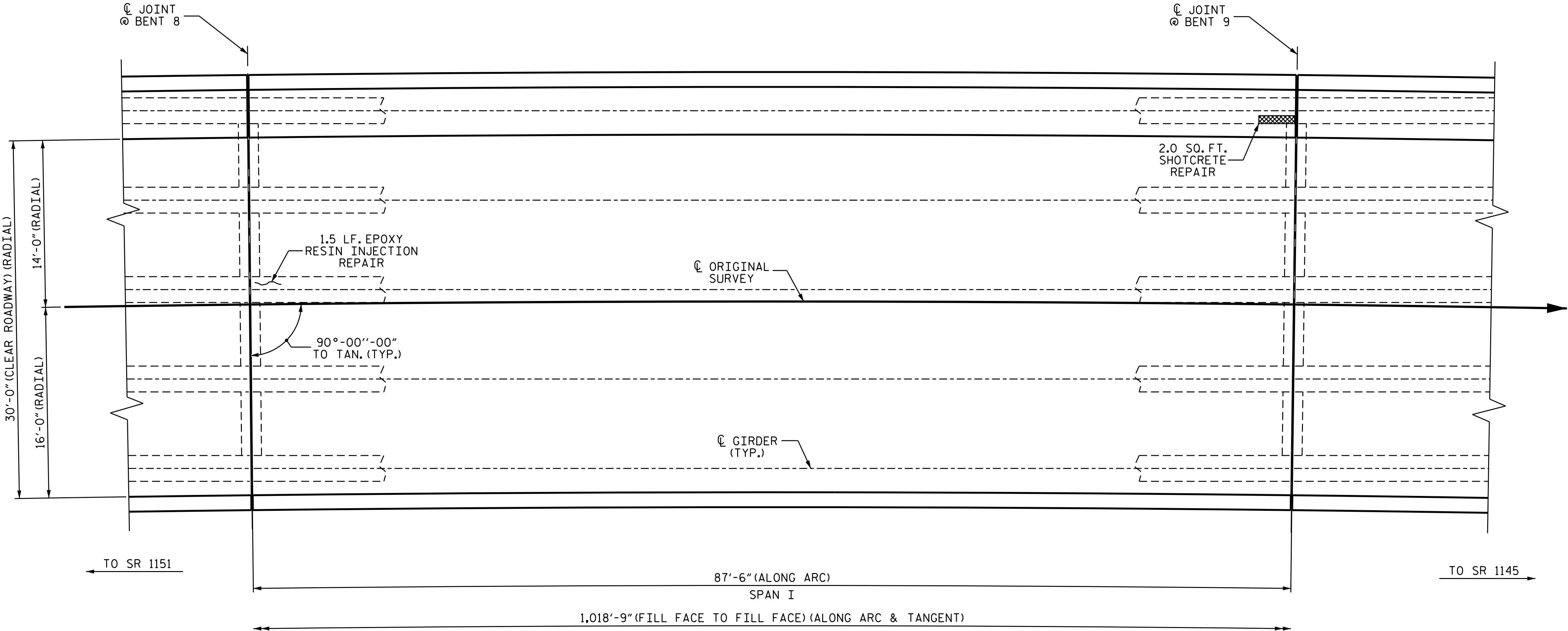
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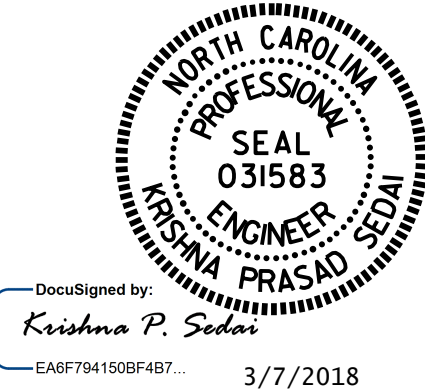
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 9 OF 12



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN I

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-26
2			4			TOTAL SHEETS 56



AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN J	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	17.2	5.7		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

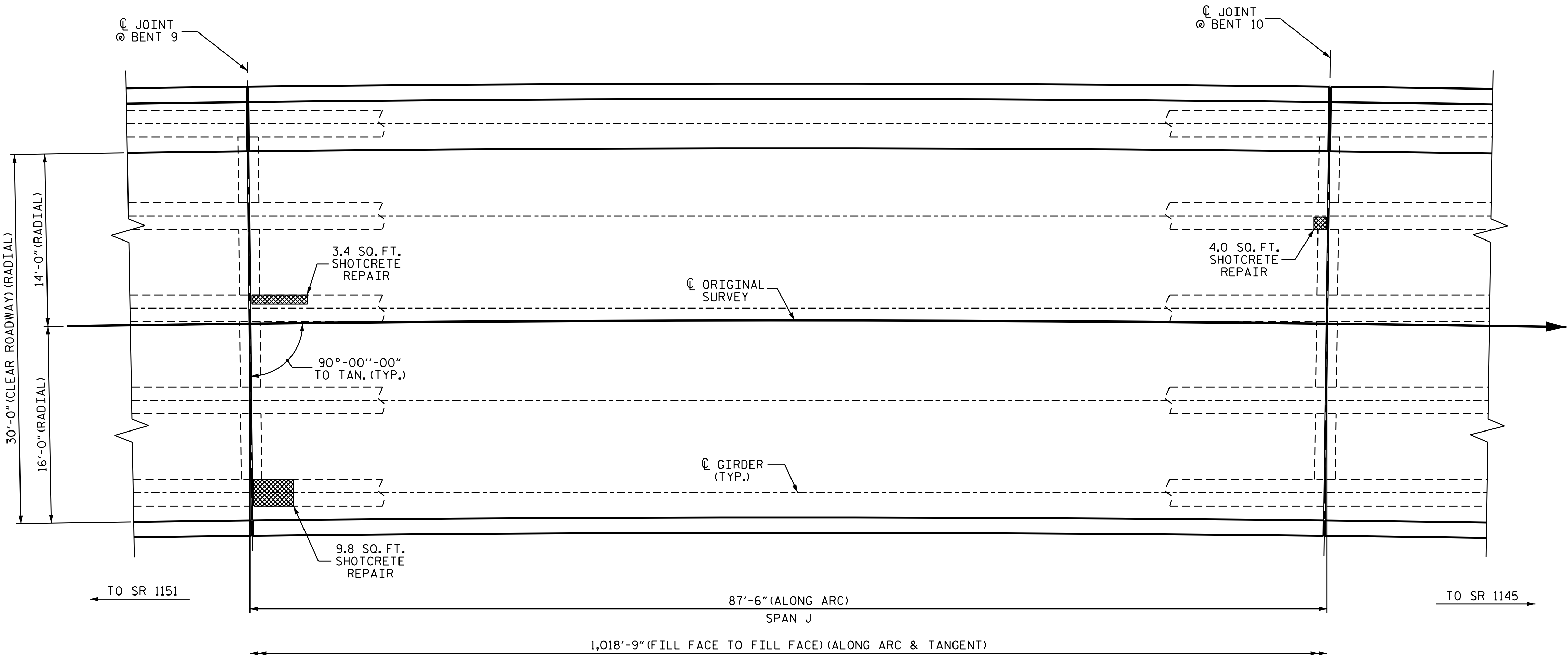
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- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



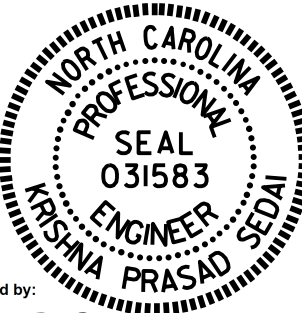
PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 10 OF 12

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPAN J



DocuSigned by:  
Krishna P. Sedai  
EABF704150BF4B7... 3/7/2018

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-27
2			4			TOTAL SHEETS 56

AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN K	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	7.6	2.5		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	9.0 LF			

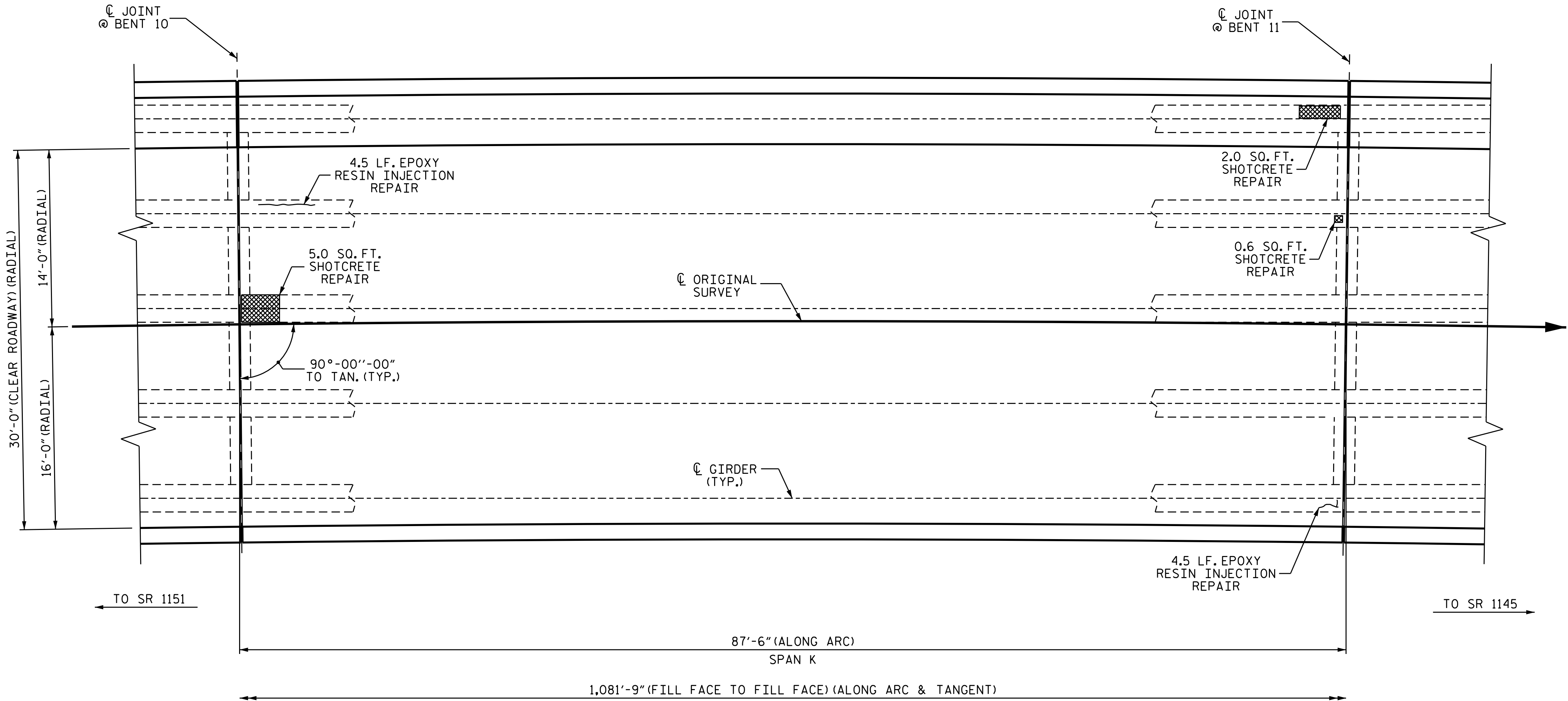
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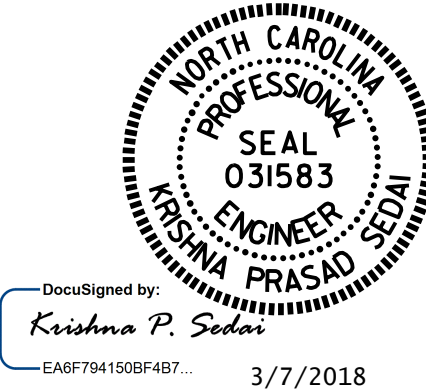
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 11 OF 12



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN K					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					SHEET NO. S-28 TOTAL SHEETS 56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017



AS-BUILT REPAIR QUANTITY TABLE				
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS SPAN L	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
GIRDERS	2.6	0.9		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

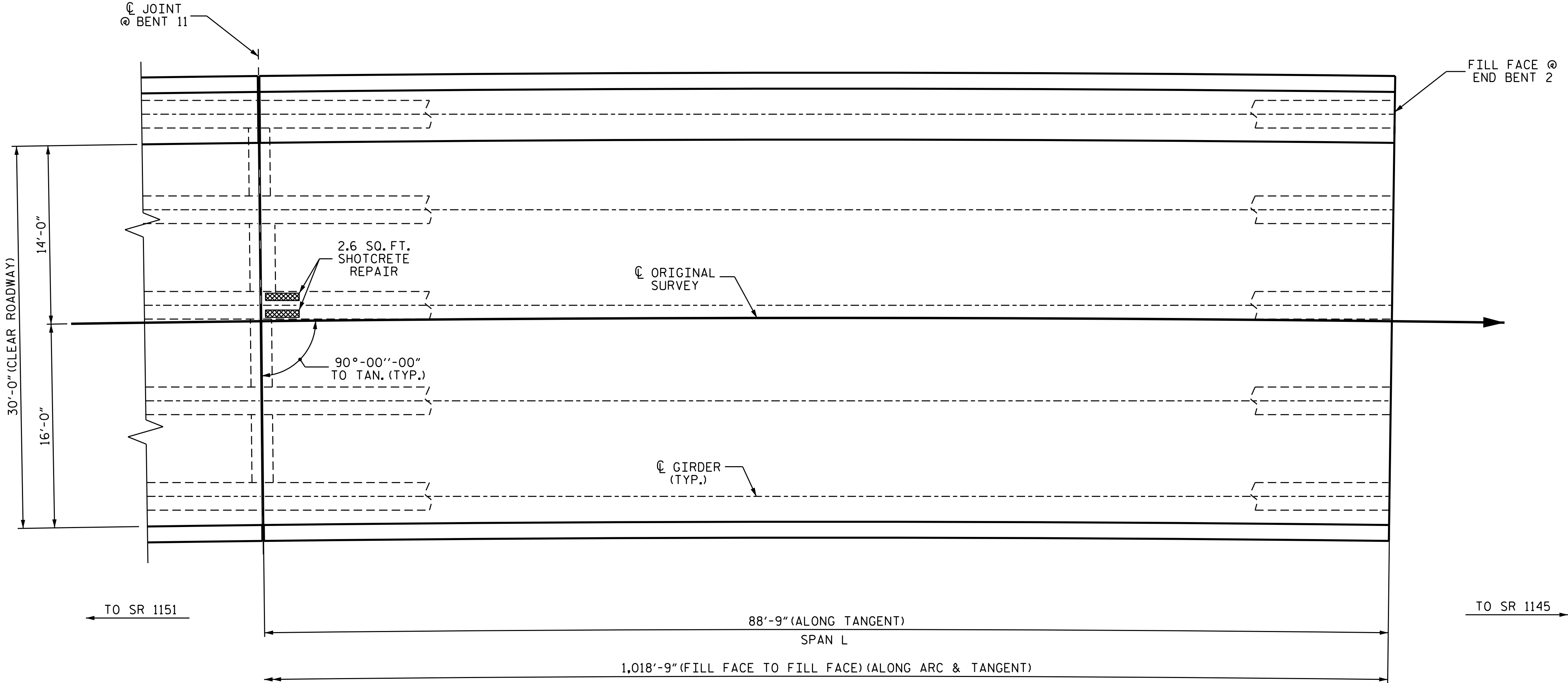
VALUES REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1"BEHIND REBAR AND MINIMUM OF 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

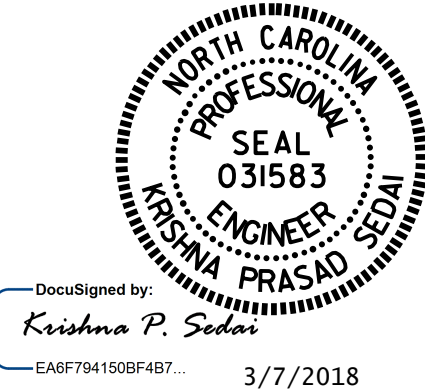
- UNDERSIDE EPOXY COATING
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION



PLAN

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

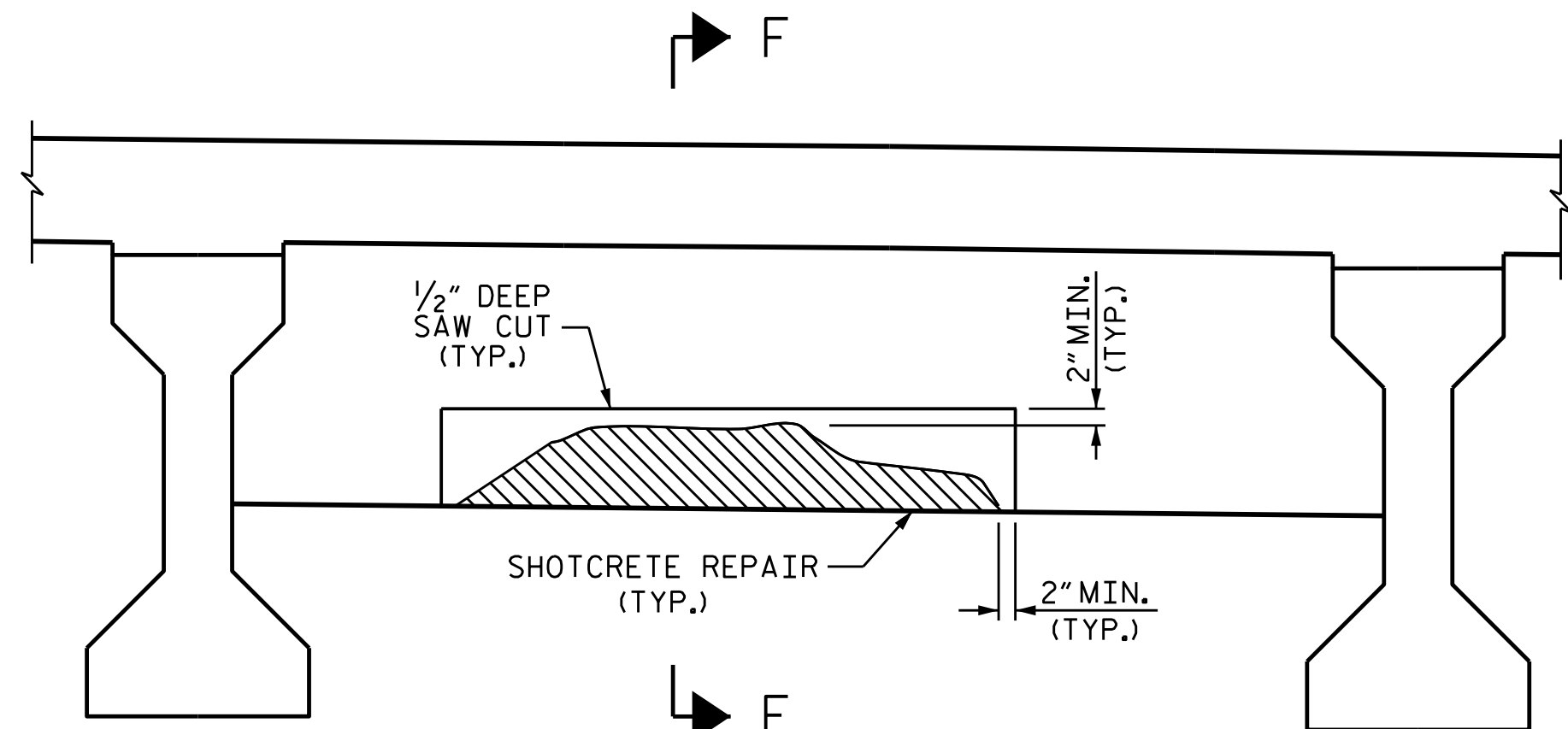
SHEET 12 OF 12



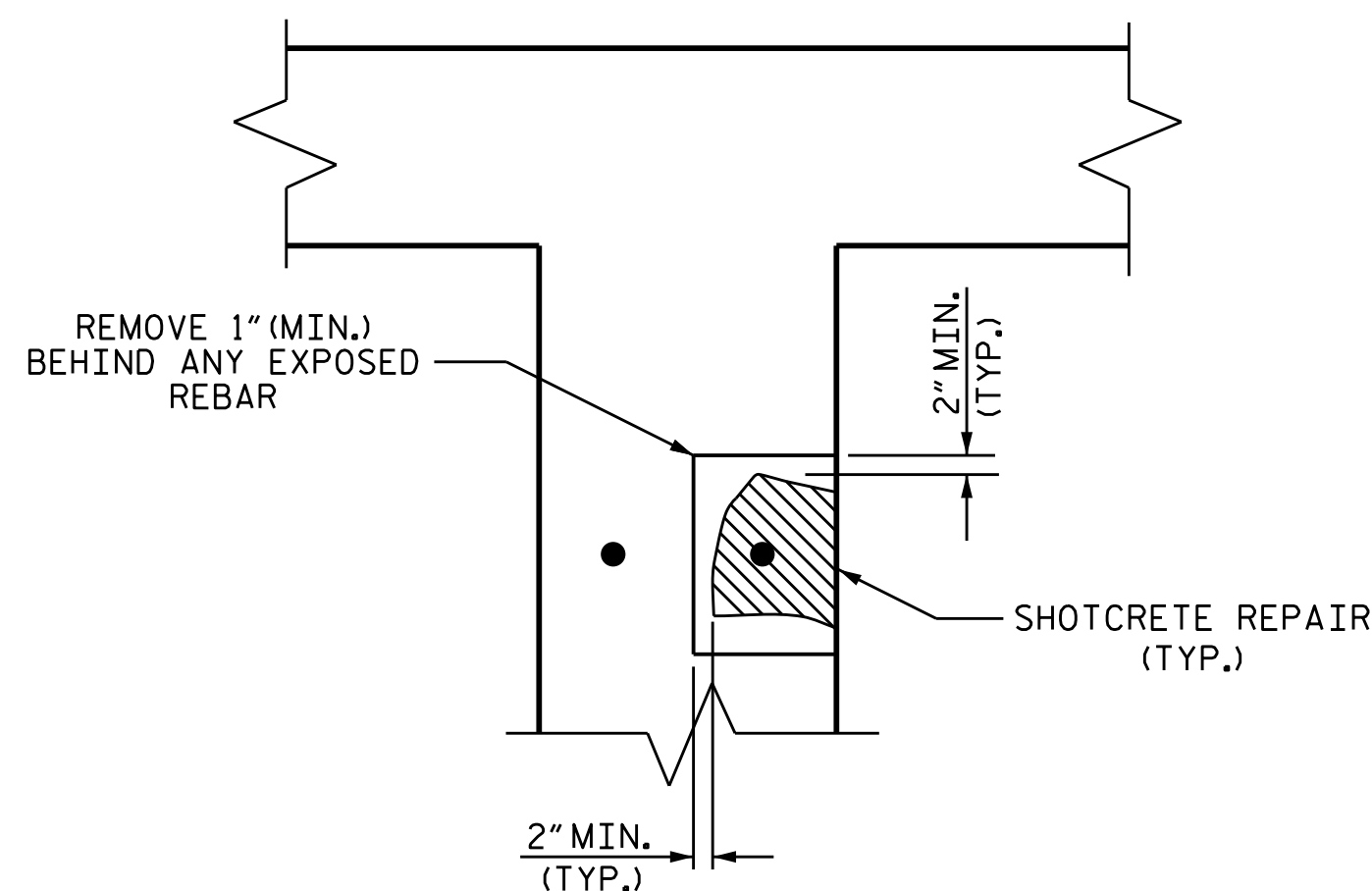
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN L					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-29
TOTAL SHEETS					56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 9/2017

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



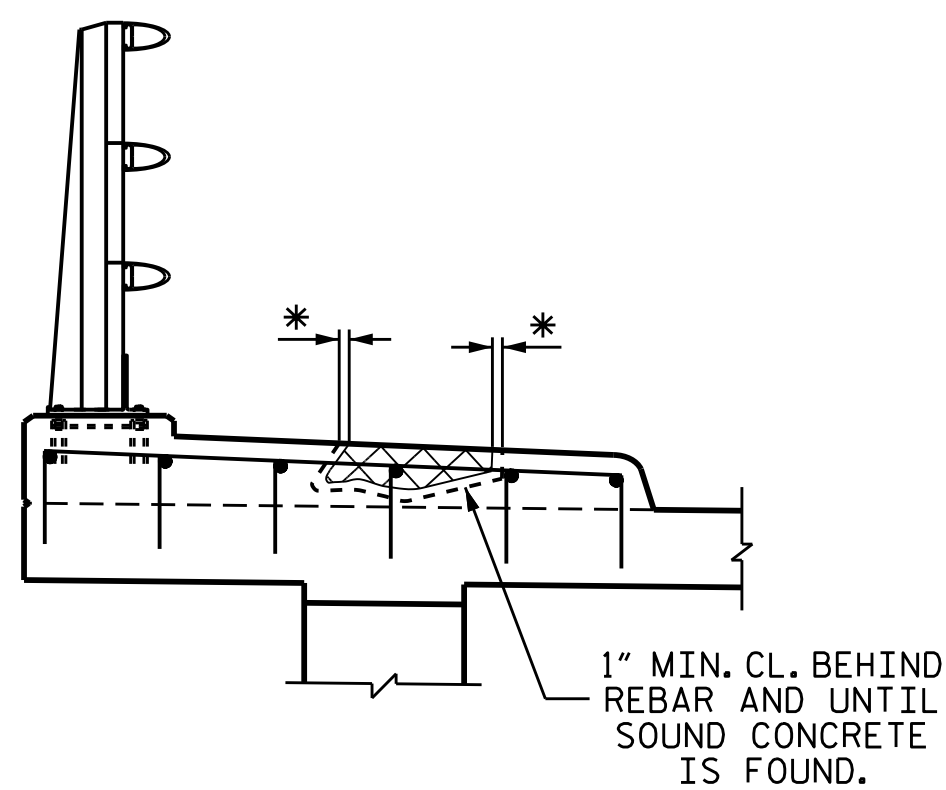
TYPICAL SECTION



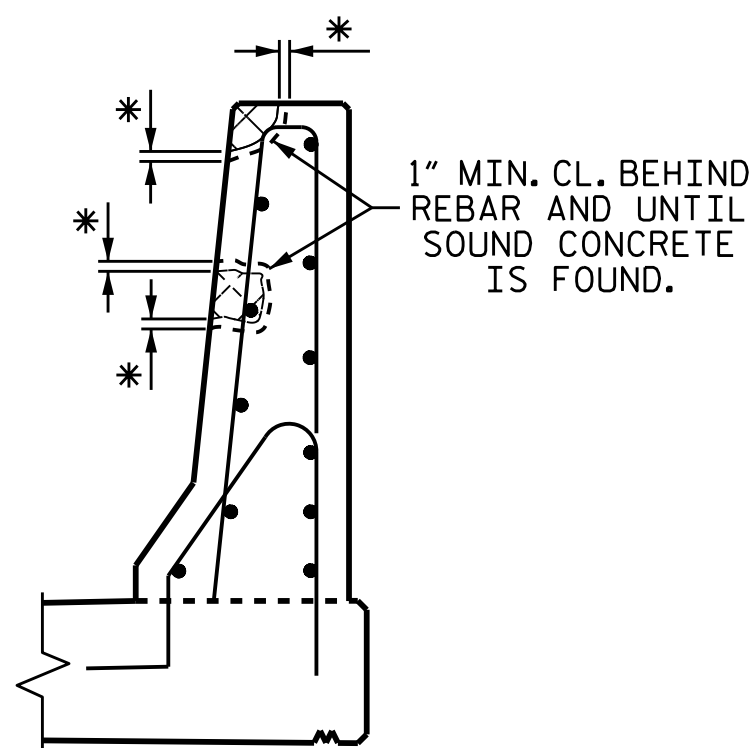
DAMAGED AREA

SECTION F-F

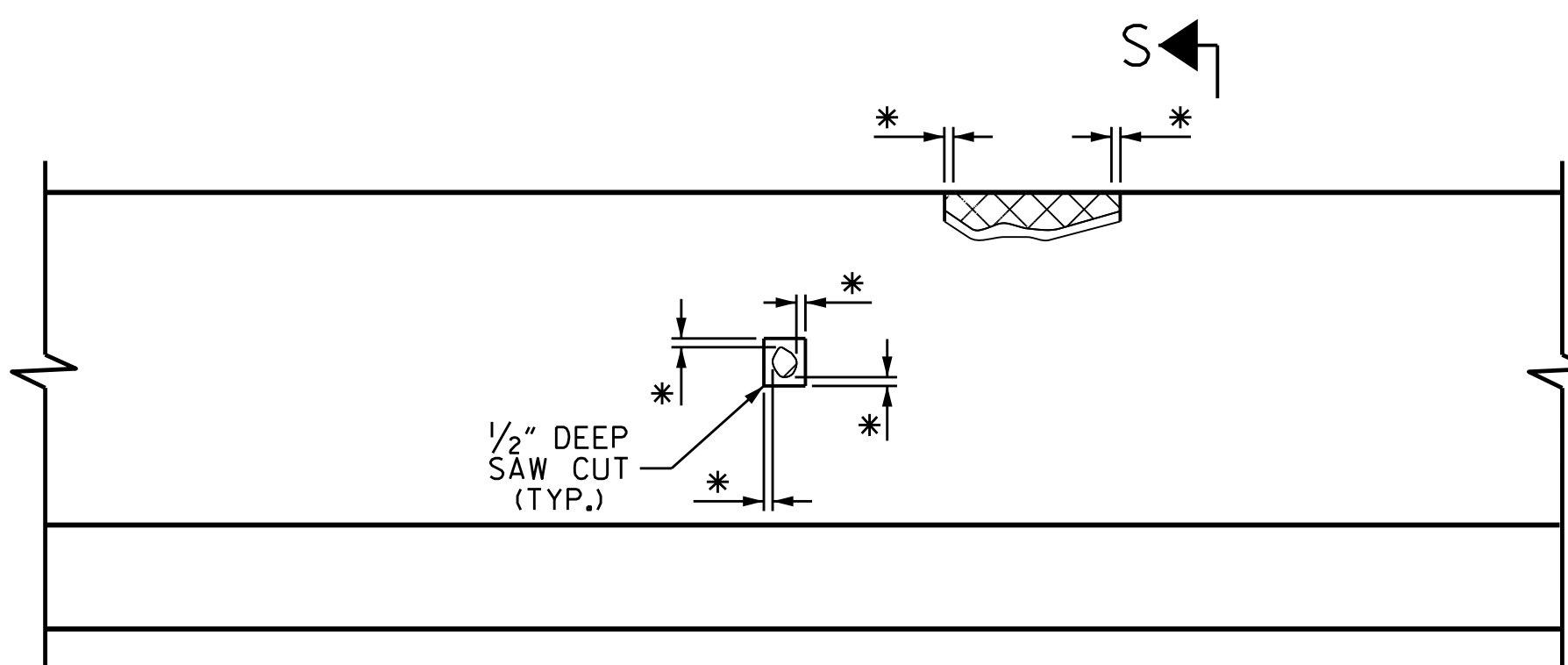
## INTERIOR DIAPHRAGM REPAIR DETAILS



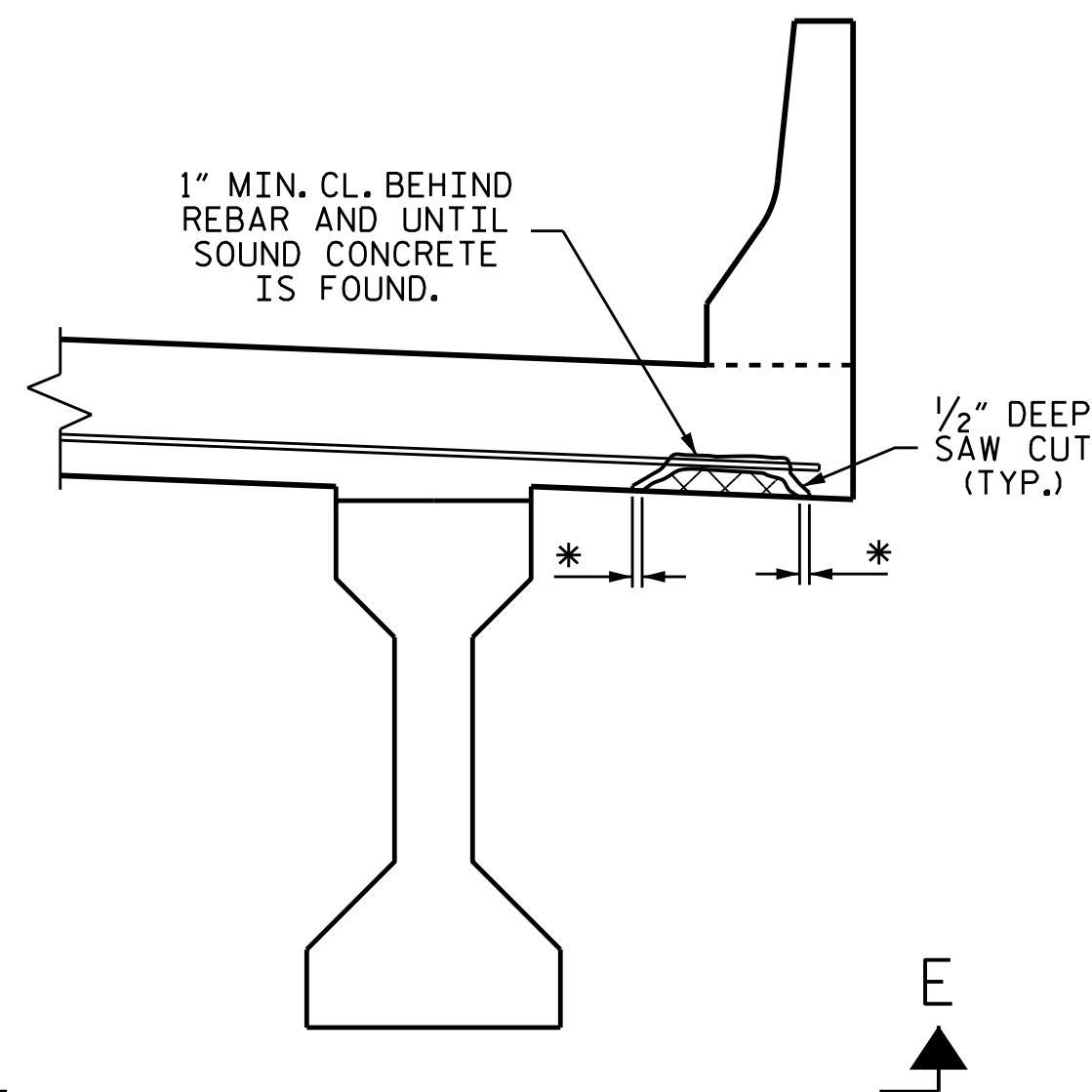
SECTION THRU SIDEWALK



SECTION S-S



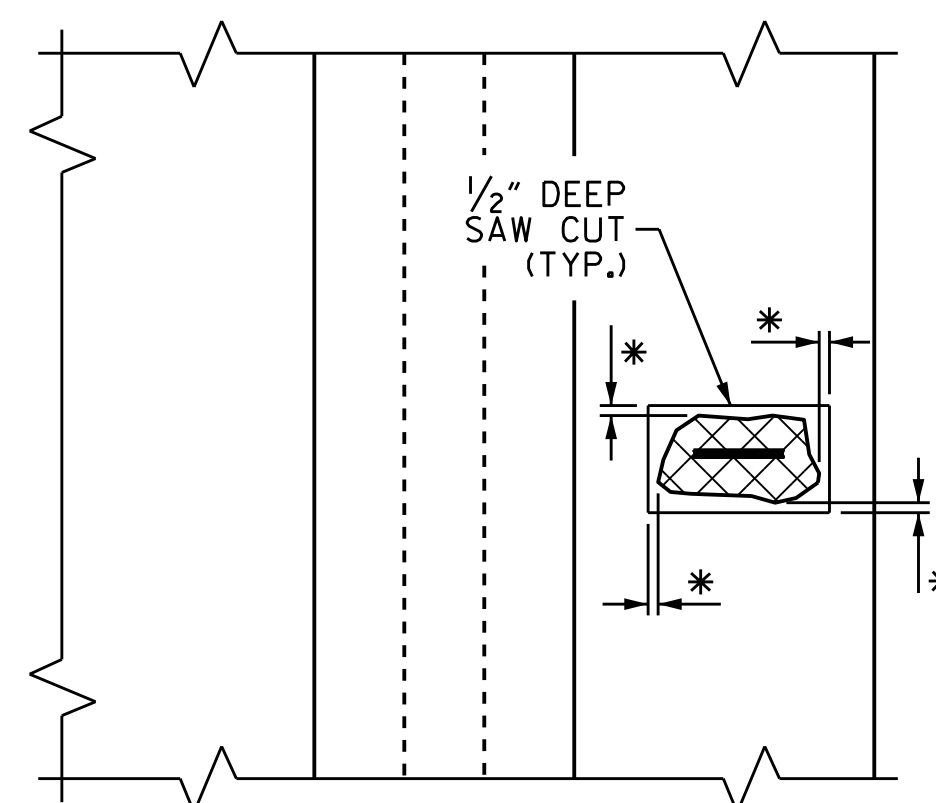
## BRIDGE RAIL AND CURB REPAIR DETAILS



TYPICAL SECTION

\* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. CL.)

DAMAGED AREA



SECTION E-E

## OVERHANG DETAILS

## NOTES

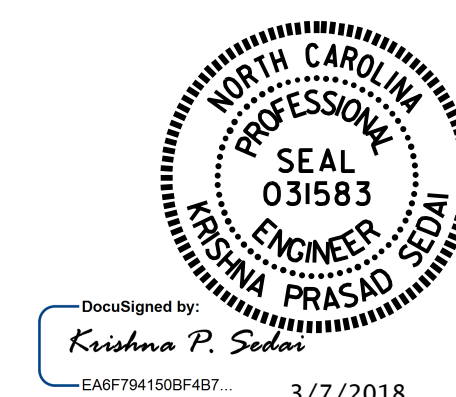
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL OR PRESTRESSED TENDONS.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL AND PRESTRESSED TENDONS SHALL NOT BE DAMAGED.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30



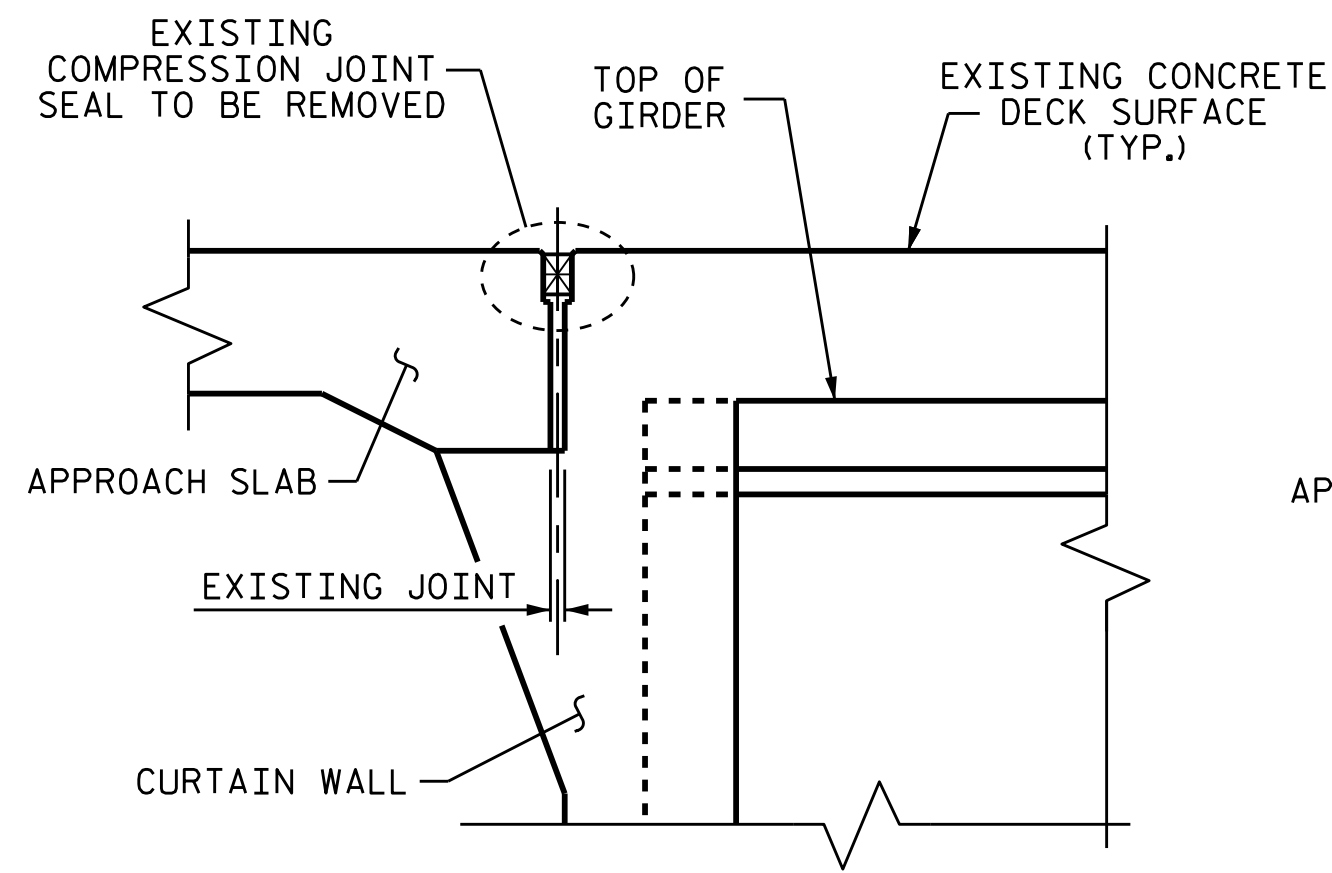
## OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS

DRAWN BY : A. SORSENGINH DATE : 10/2017  
CHECKED BY : H. T. BARBOUR DATE : 10/2017

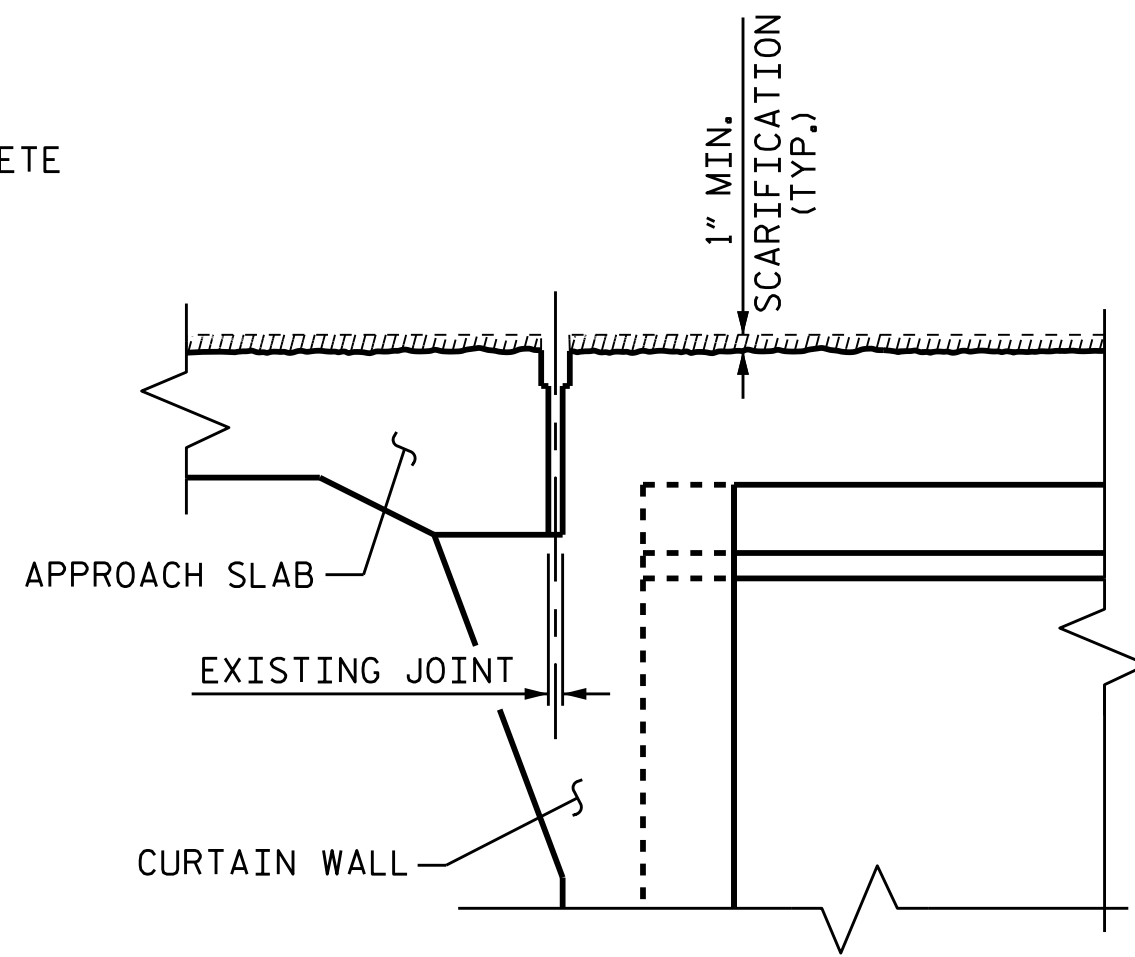
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-30
2			4			TOTAL SHEETS 56

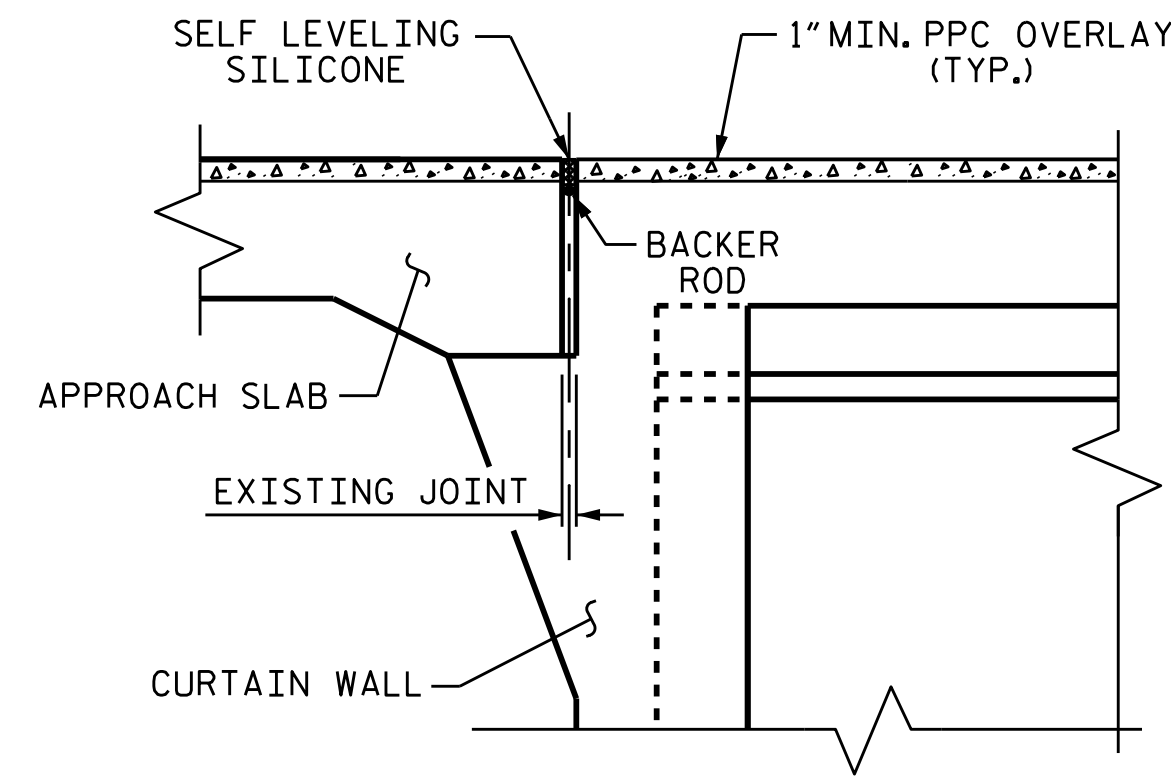




EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



PROPOSED JOINT

## NOTES

FOAM JOINTS SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

FOR FOAM JOINTS, SEE SPECIAL PROVISIONS.

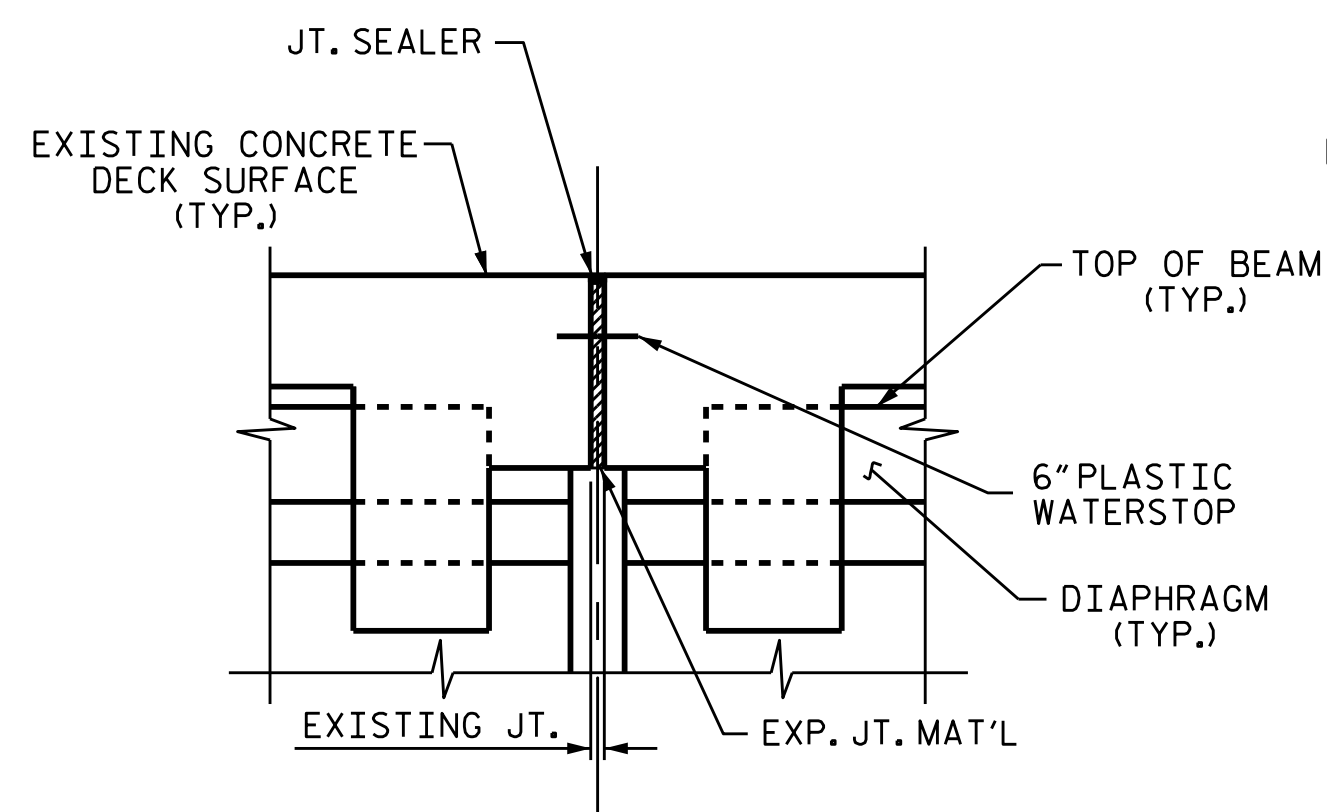
THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

THE FOAM JOINTS SHALL MEET THE MANUFACTURER'S RECOMMENDATION FOR THE SIZE OF OPENING ON THE PLANS, AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

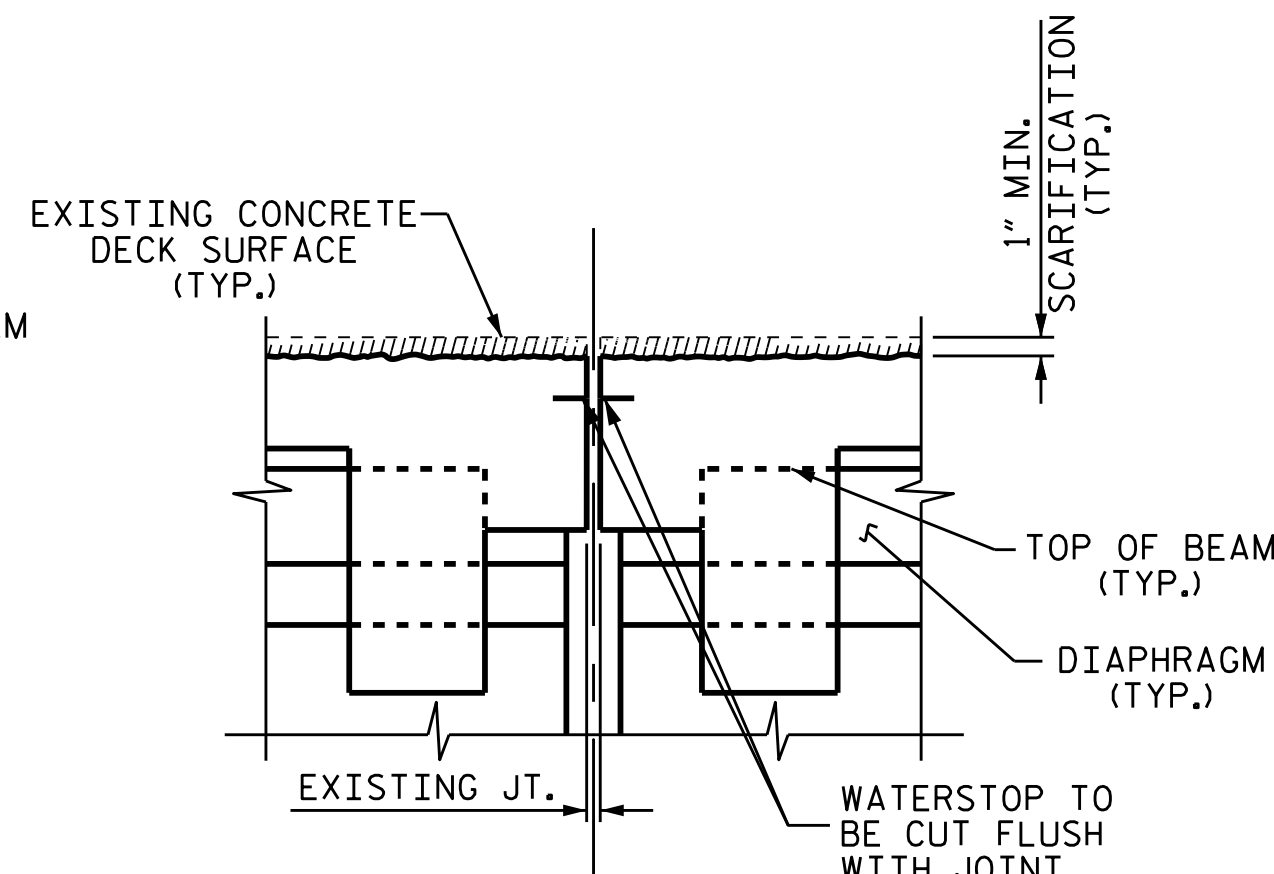
THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE 2".

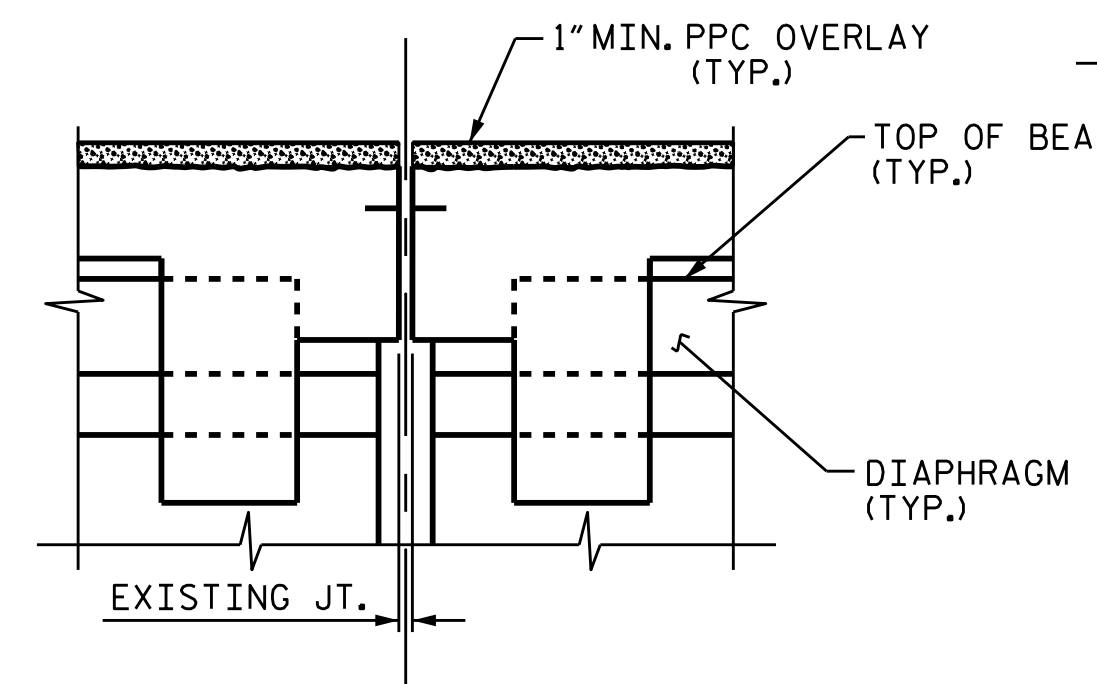
IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOP SHALL BE REMOVED.



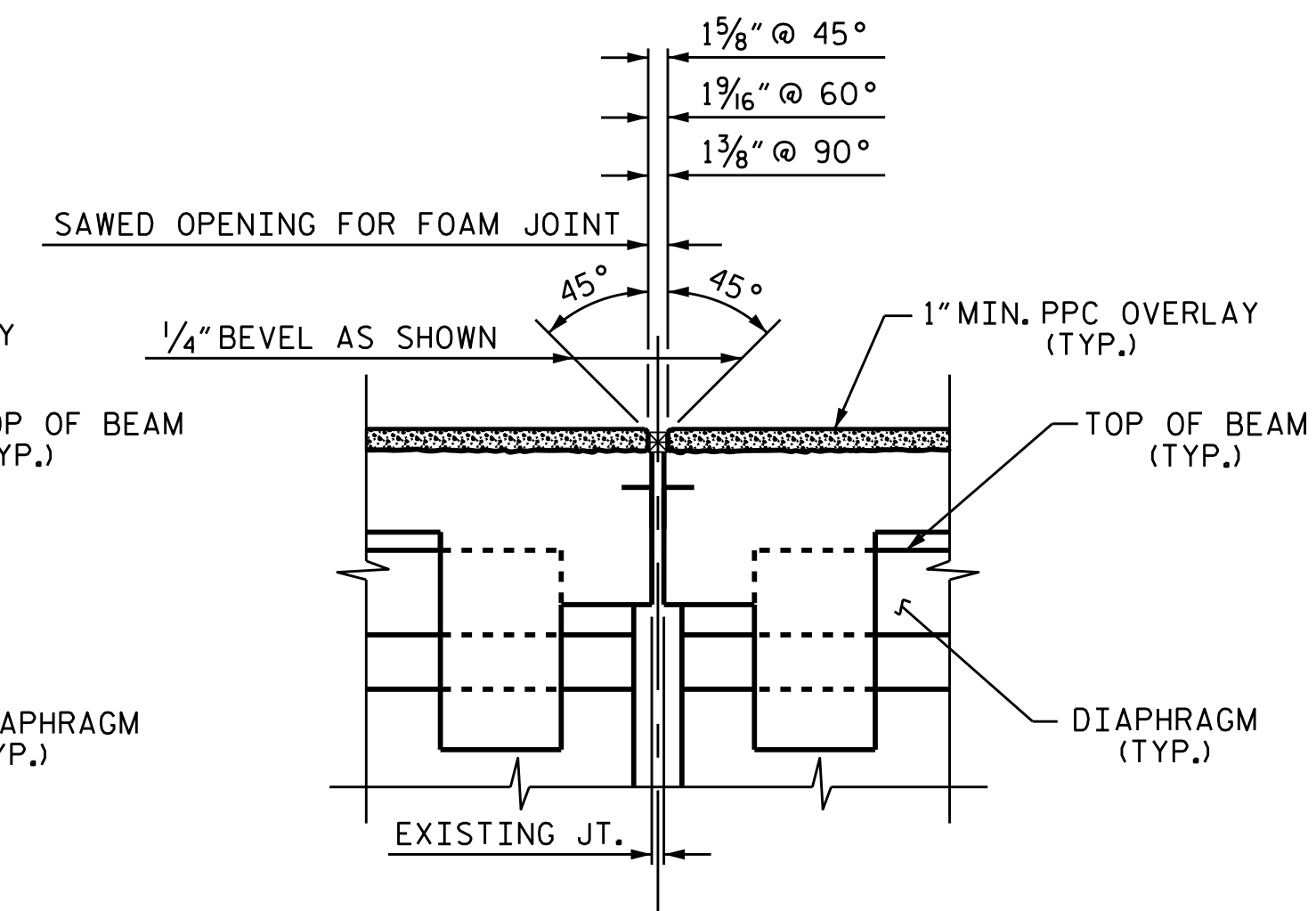
EXISTING JOINT



EXISTING JOINT AFTER DECK SCARIFICATION

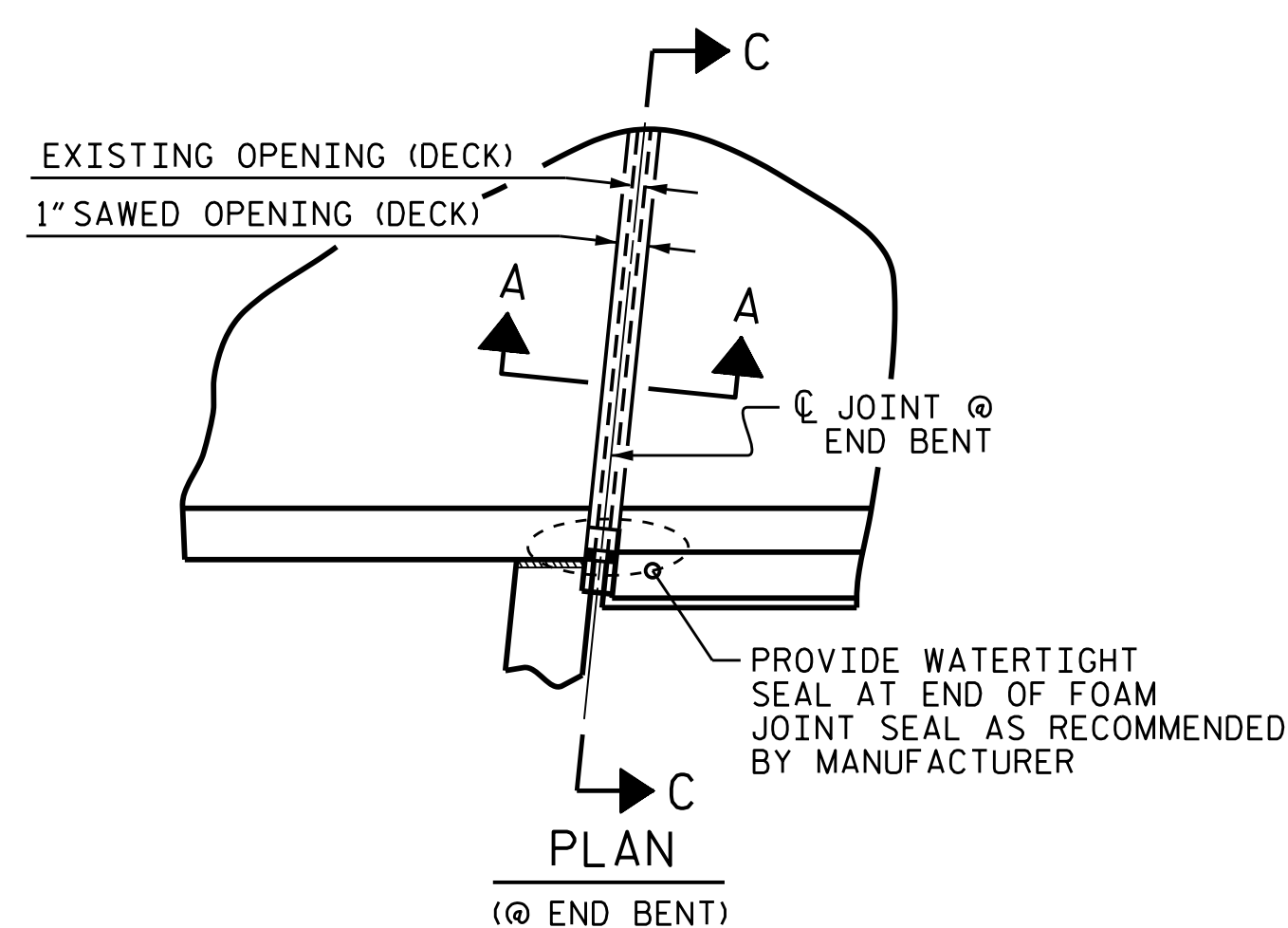


PROPOSED JOINT PRE-SAWED

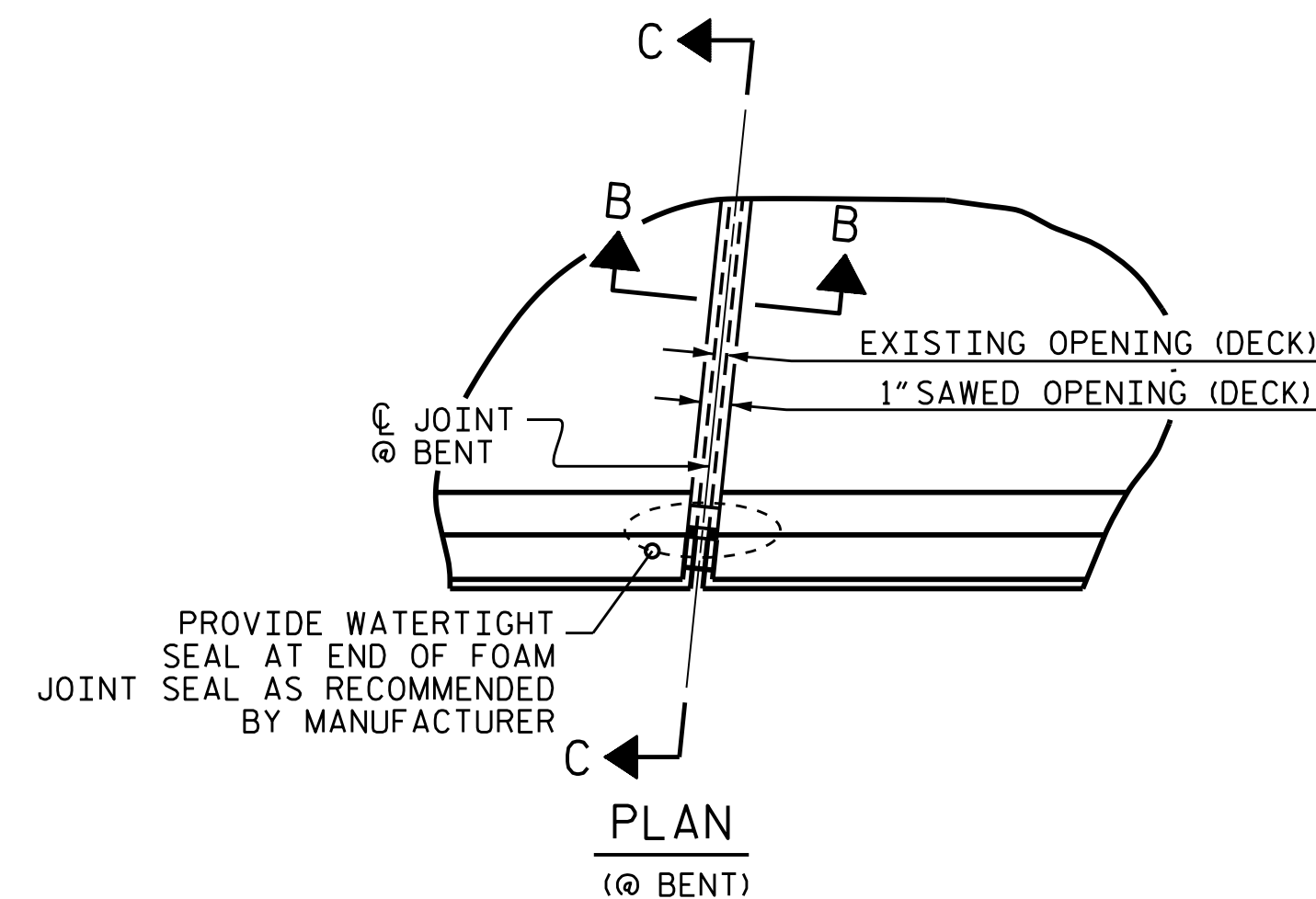


PROPOSED FOAM JOINT SEAL

## SECTION B-B

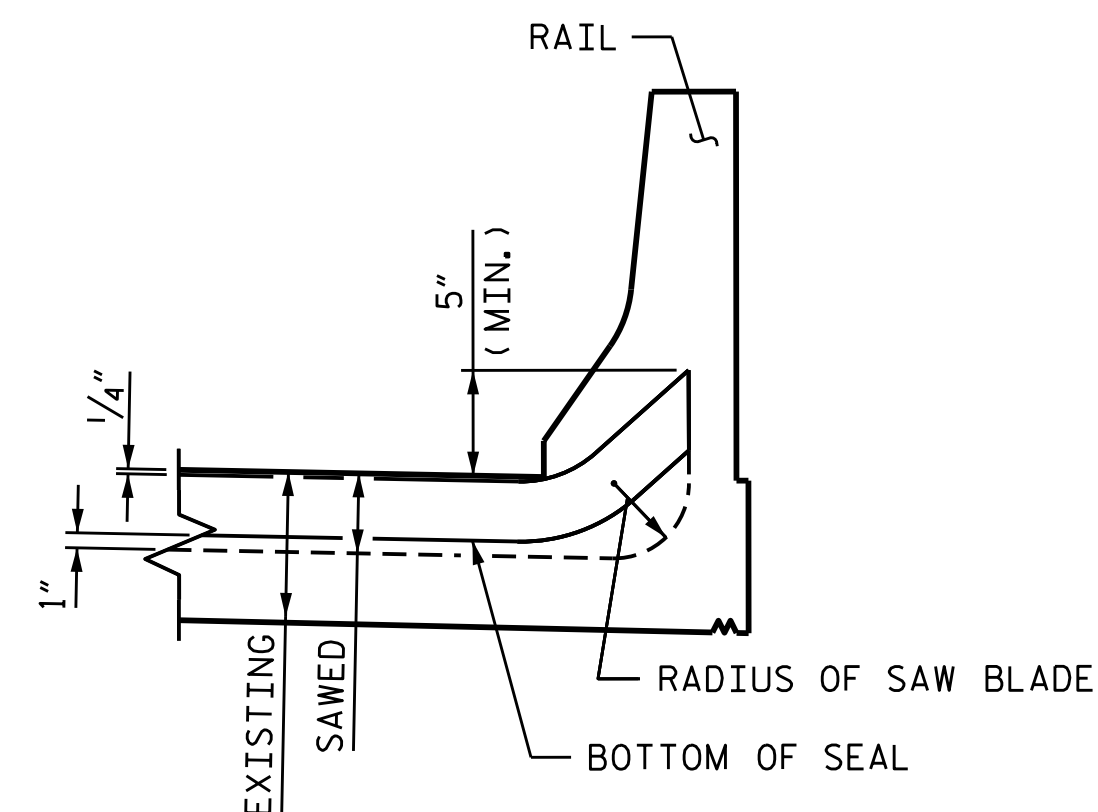


PLAN  
(@ END BENT)



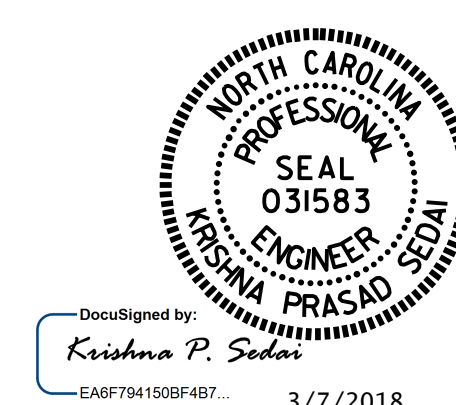
PLAN  
(@ BENT)

## JOINT SEAL DETAILS



SECTION C-C

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
 BRIDGE NO. 30

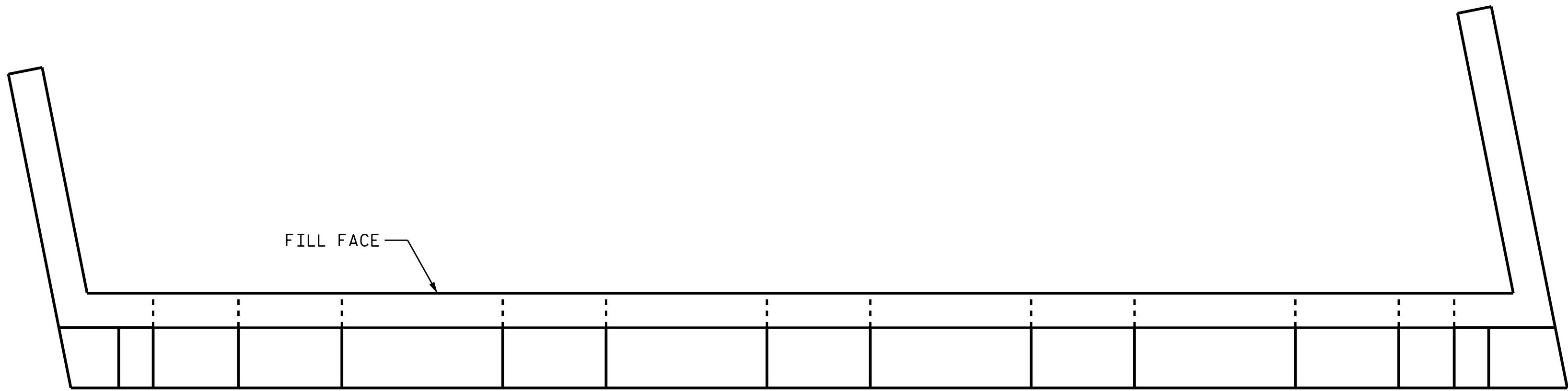


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.	
JOINT DETAILS						S-31	
REVISIONS						TOTAL SHEETS	
NO.	BY:	DATE:	NO.	BY:	DATE:	56	
1			3				
2			4				

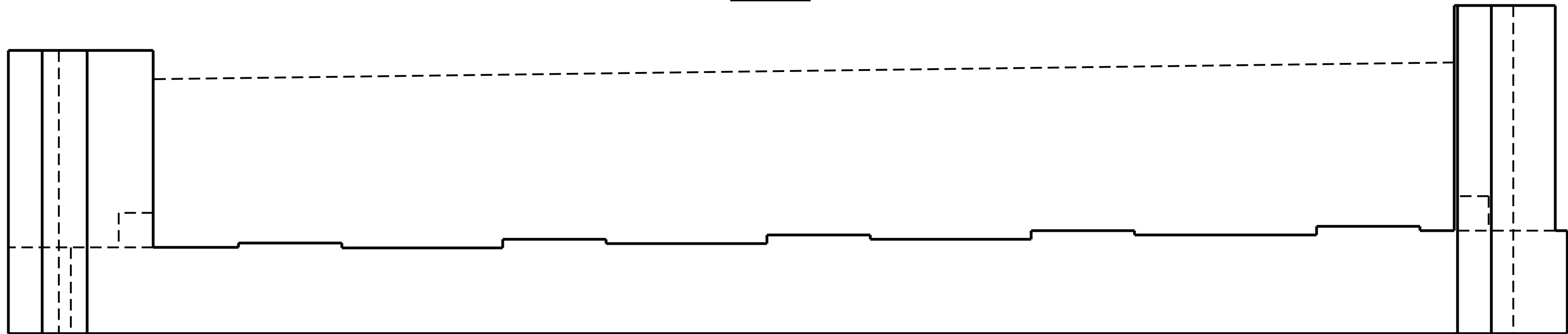
DRAWN BY : A. SORSENGINH DATE : 6/2017  
 CHECKED BY : H. T. BARBOUR DATE : 9/2017

30-NOV-2017 11:36  
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DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

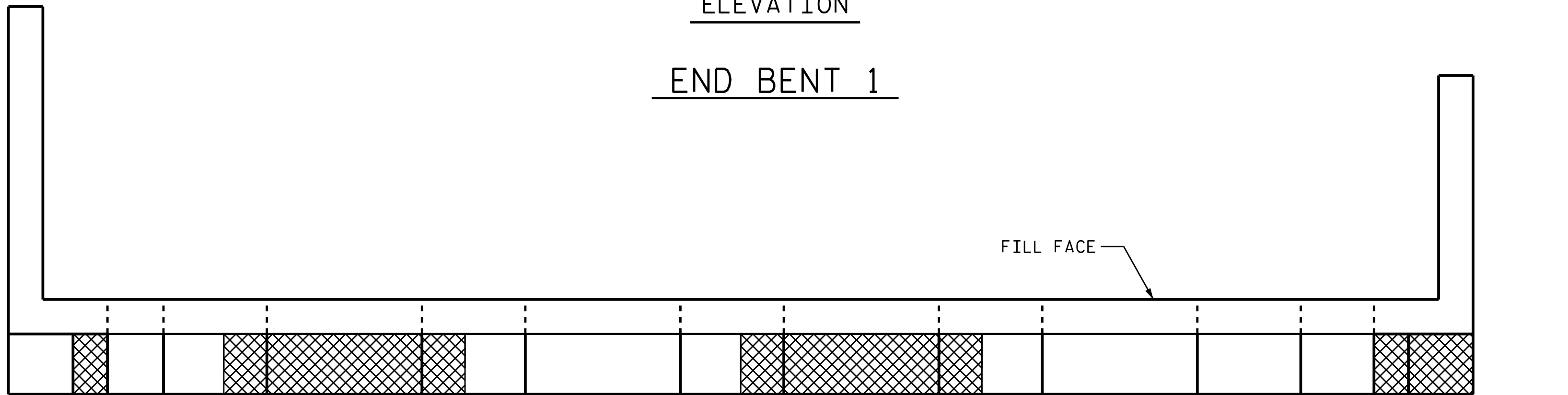


PLAN

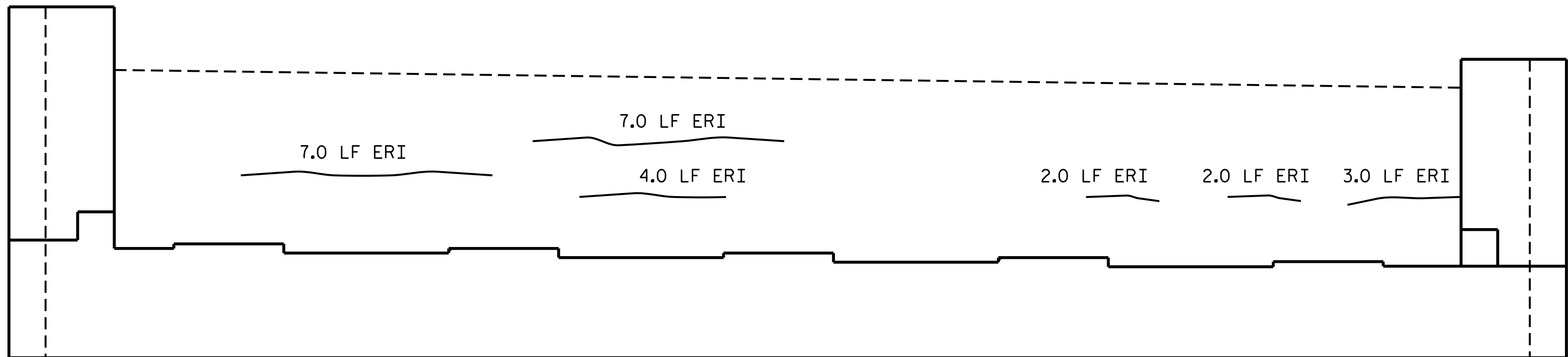


ELEVATION

END BENT 1






PLAN



ELEVATION

END BENT 2

-  CONCRETE REPAIR AREA
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)

AS-BUILT REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
CURTAIN WALL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CURTAIN WALL		0.0		
CAP		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF END BENT CAP		0.0		
CURTAIN WALL		0.0		

AS-BUILT REPAIR QUANTITY TABLE

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
CURTAIN WALL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	31.5	15.8		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CURTAIN WALL		25.0		
CAP		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF END BENT CAP		0.0		
CURTAIN WALL		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

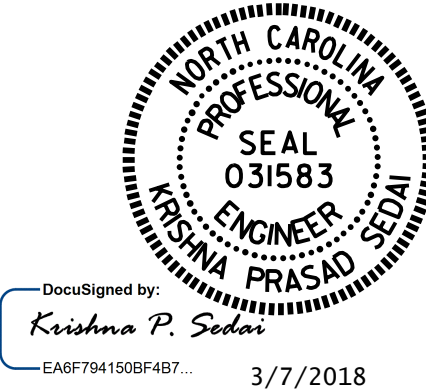
NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARING. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

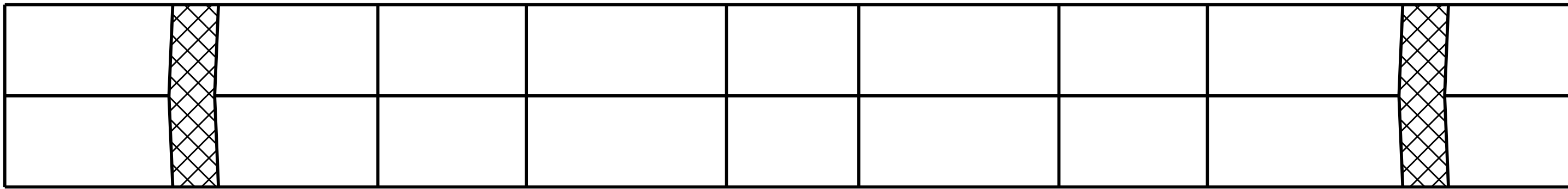
PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30



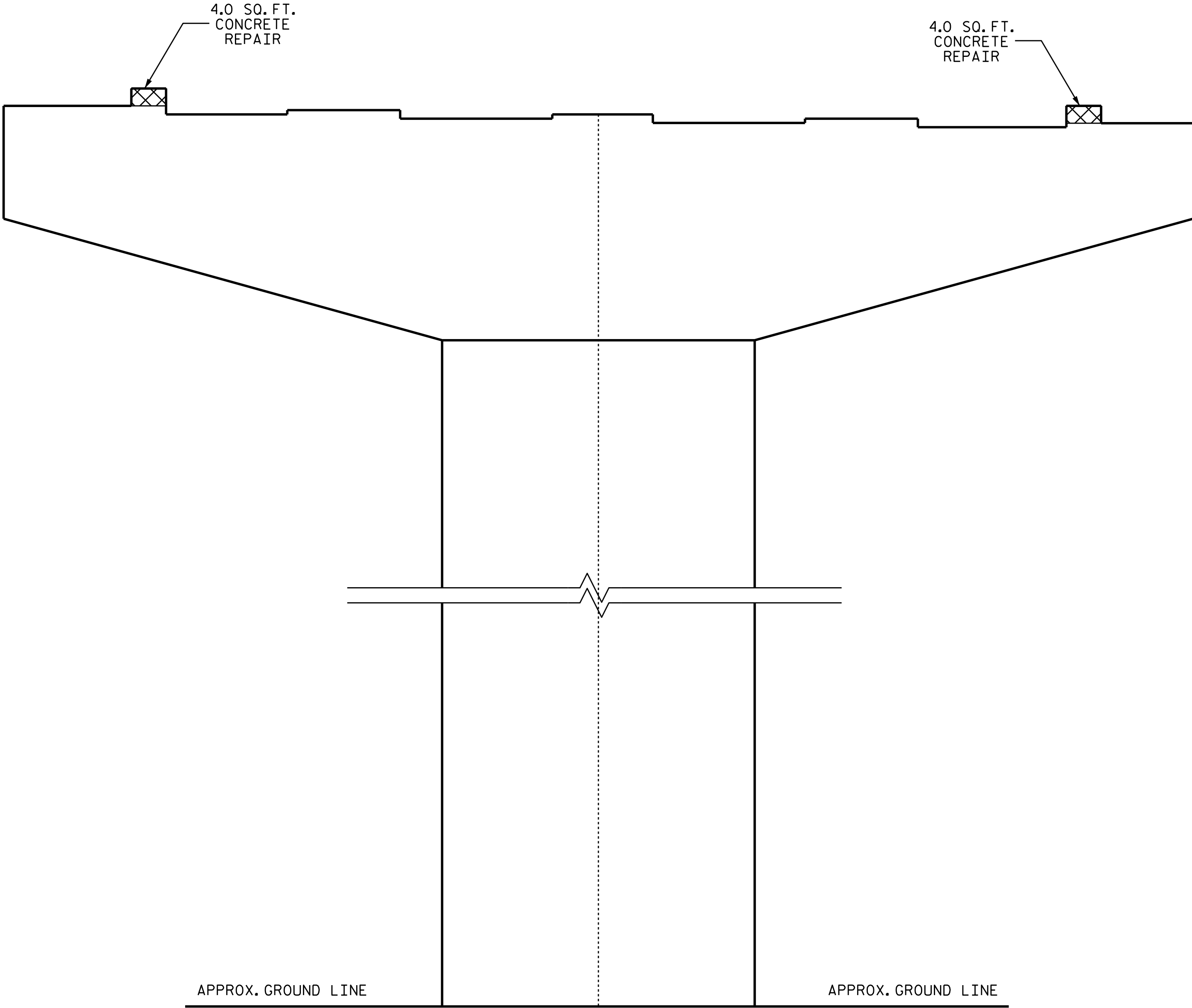
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
END BENTS 1 & 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					TOTAL SHEETS 56

DRAWN BY : A. SORSENGINH DATE : 7/2017  
CHECKED BY : H. T. BARBOUR DATE : 8/2017





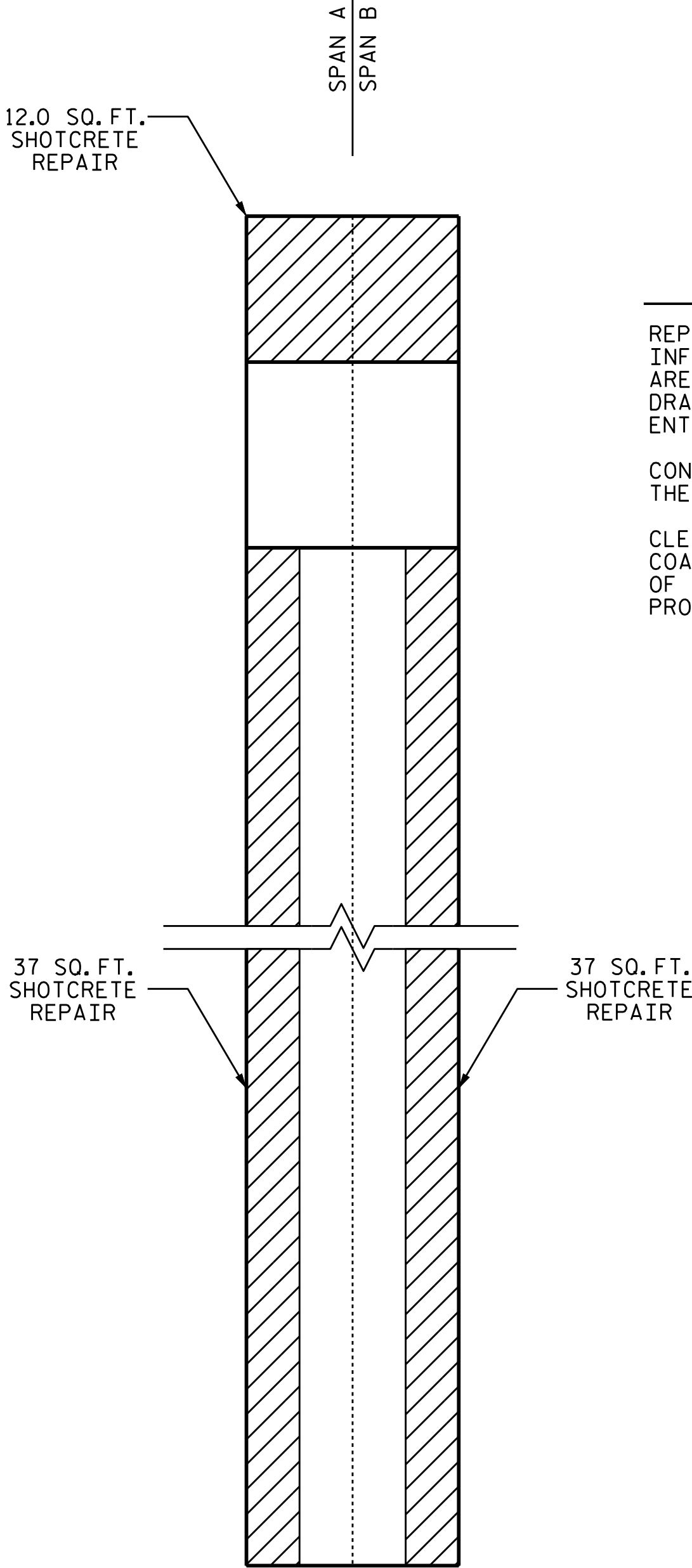
PLAN - TOP OF CAP



ELEVATION

SPAN B

SPAN A



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 1 (A FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	12.0	6.0		
COLUMN	74.0	37.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	8.0	4.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	74.1			

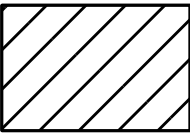
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES

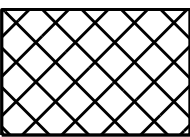
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARING. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



SHOTCRETE REPAIR AREA



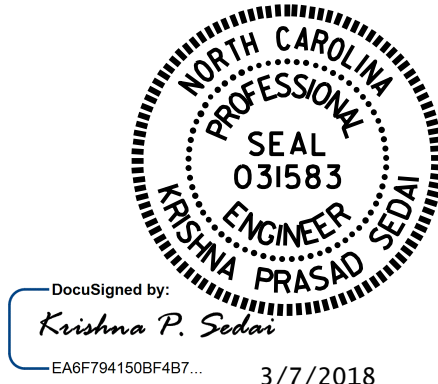
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 1 OF 2



SUBSTRUCTURE  
BENT 1  
SPAN A FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			
2			4			56

AS-BUILT REPAIR QUANTITY TABLE

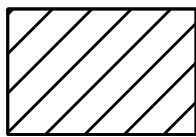
REPAIRS BENT 1 (B FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	207.7	103.9		
COLUMN	222.0	111.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	0.0			
COLUMN	0.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

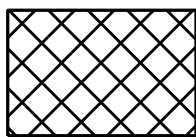
NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.



SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5

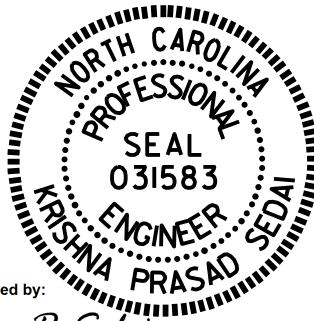
ROCKINGHAM COUNTY

BRIDGE NO. 30

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 1  
SPAN B FACE



DocuSigned by:  
Krishna P. Sadas  
EA6F7B4150BF4B7... 3/7/2018

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S-34
TOTAL SHEETS
56

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

52.3 SQ. FT.  
SHOTCRETE  
REPAIR

52.3 SQ. FT.  
SHOTCRETE  
REPAIR

SPAN A

SPAN B

PLAN - BOTTOM OF CAP

16.8 SQ. FT.  
SHOTCRETE  
REPAIR

27.3 SQ. FT.  
SHOTCRETE  
REPAIR

28.7 SQ. FT.  
SHOTCRETE  
REPAIR

18.3 SQ. FT.  
SHOTCRETE  
REPAIR

12.0 SQ. FT.  
SHOTCRETE  
REPAIR

SPAN B  
SPAN A

111.0 SQ. FT.  
SHOTCRETE  
REPAIR

111.0 SQ. FT.  
SHOTCRETE  
REPAIR

APPROX. GROUND LINE

APPROX. GROUND LINE

ELEVATION

END VIEW

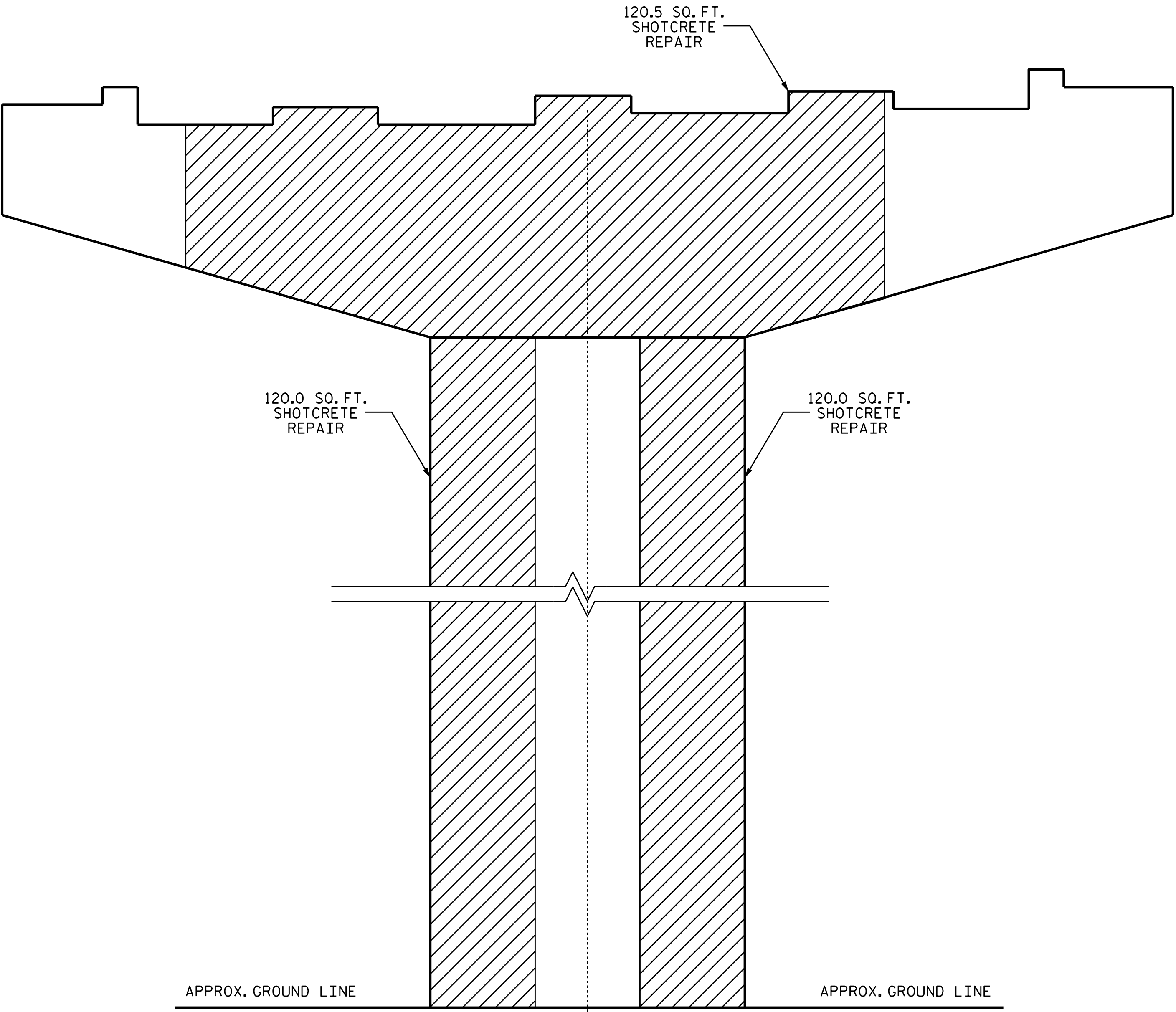
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17







PLAN - BOTTOM OF CAP



ELEVATION

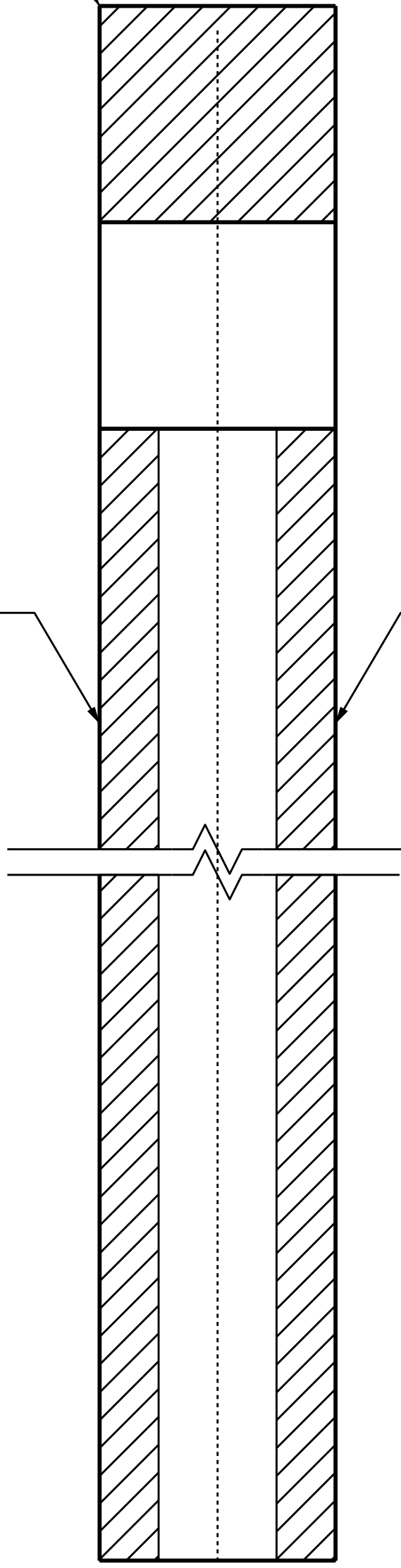
SPAN B

SPAN C

12.0 SQ. FT. SHOTCRETE REPAIR

40 SQ. FT. SHOTCRETE REPAIR

SPAN C  
SPAN B



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

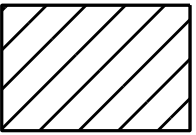
REPAIRS BENT 2 (C FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	158.7	79.4		
COLUMN	320.0	160.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

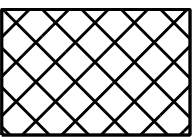
NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.



SHOTCRETE REPAIR AREA



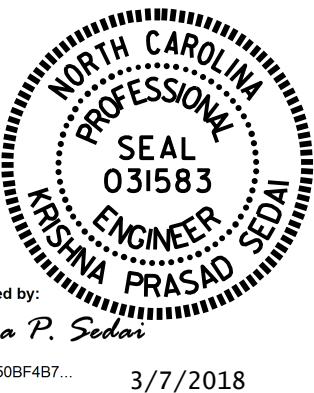
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 2



SUBSTRUCTURE  
BENT 2  
SPAN C FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

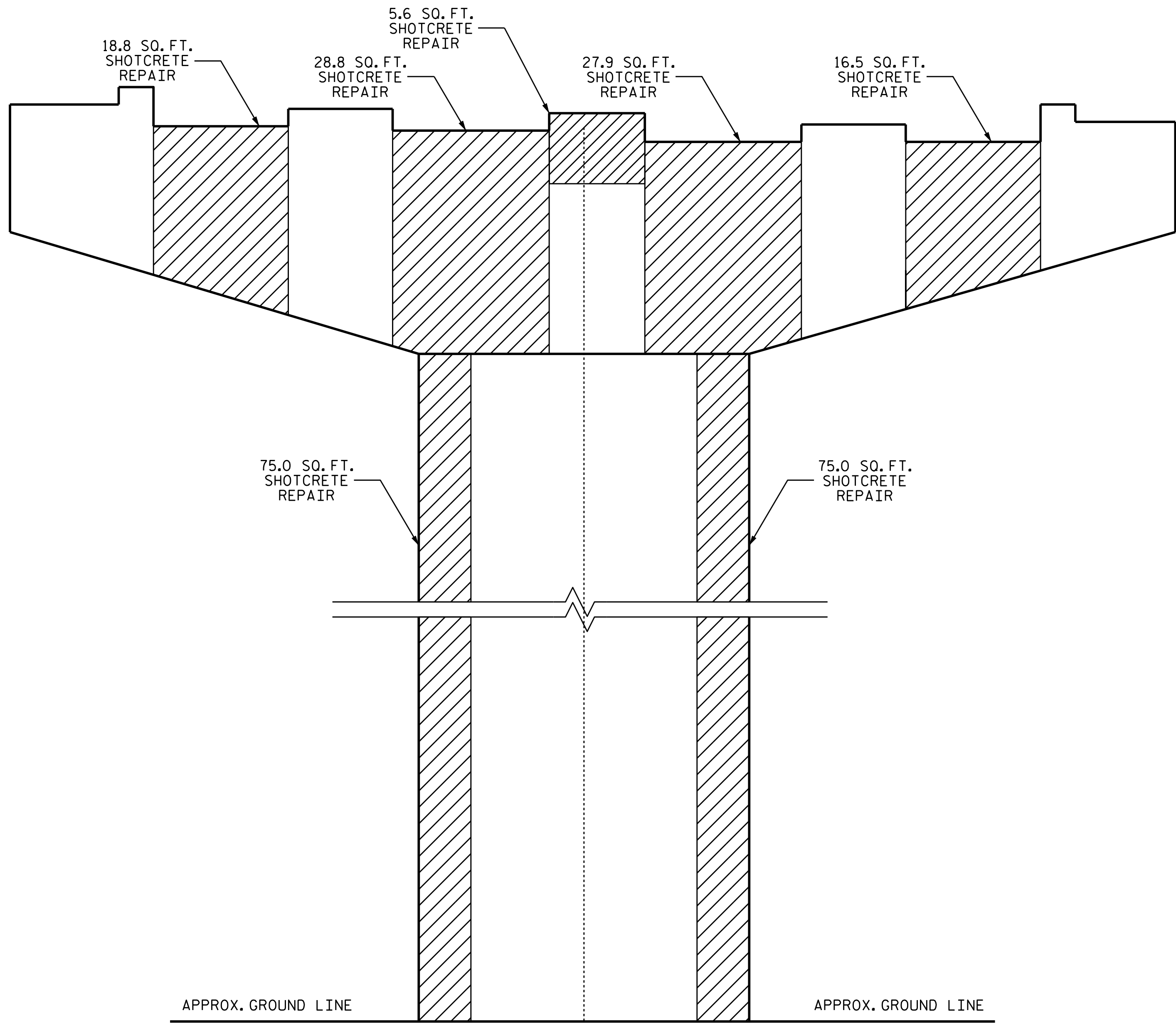
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FINAL UNLESS ALL  
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-36
1			3			TOTAL SHEETS
2			4			56





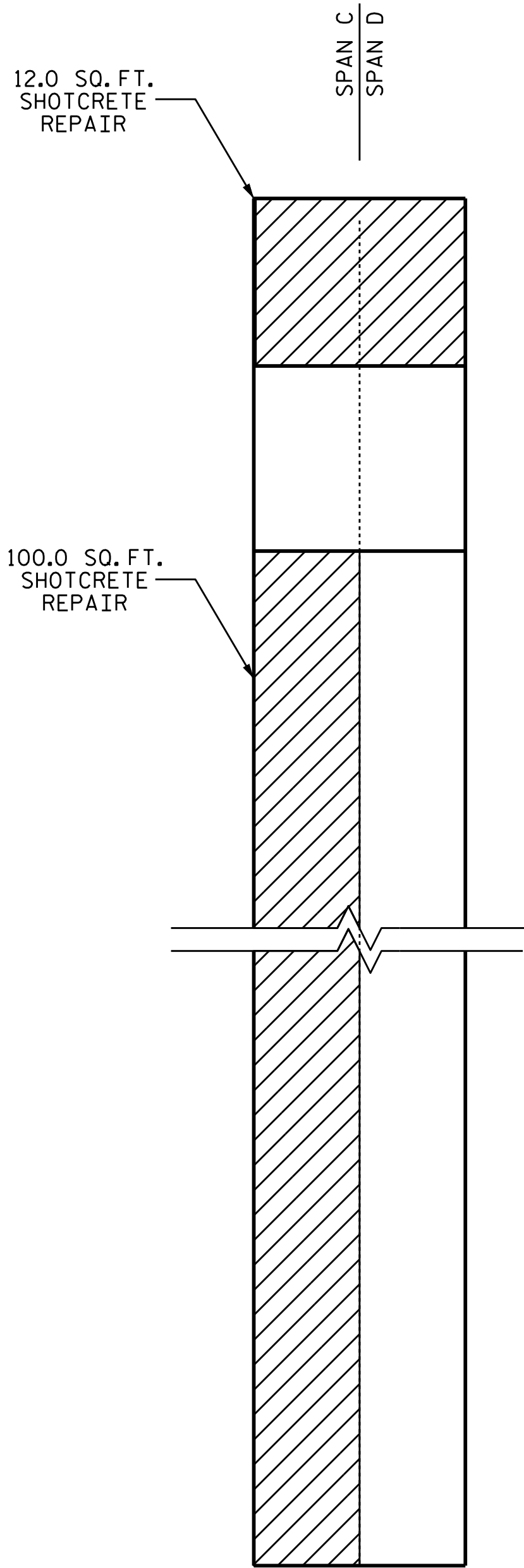
PLAN - TOP OF CAP



ELEVATION

SPAN D

SPAN C



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 3 (C FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	109.6	54.8		
COLUMN	250.0	125.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

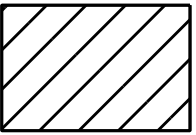
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES

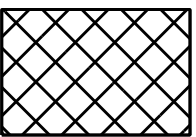
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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARING. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



SHOTCRETE REPAIR AREA



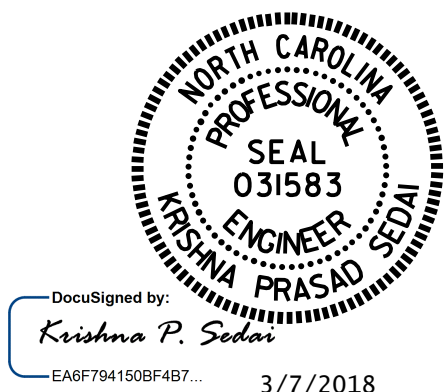
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 1 OF 2

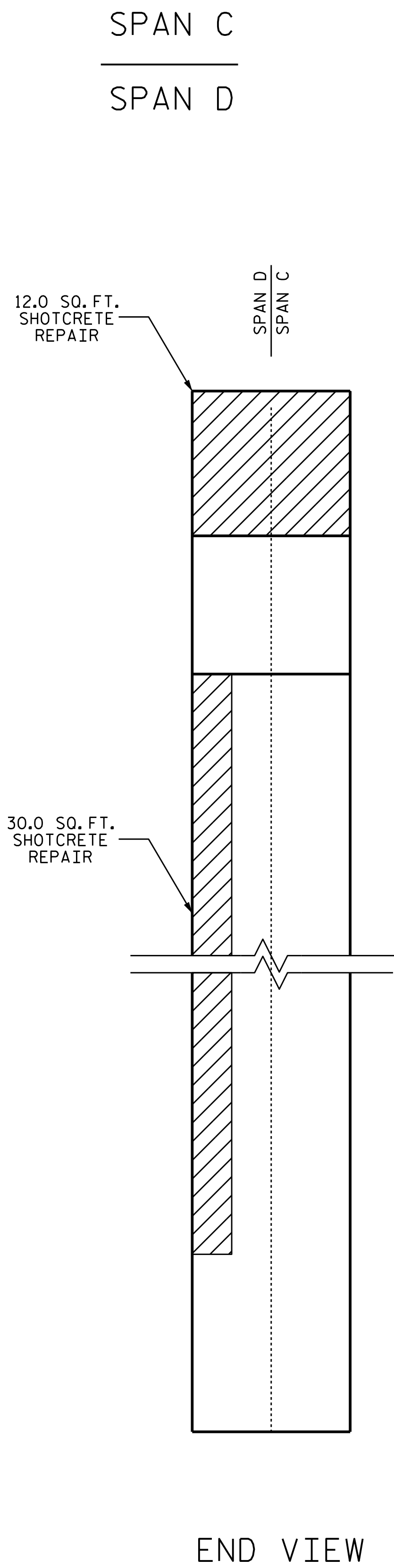
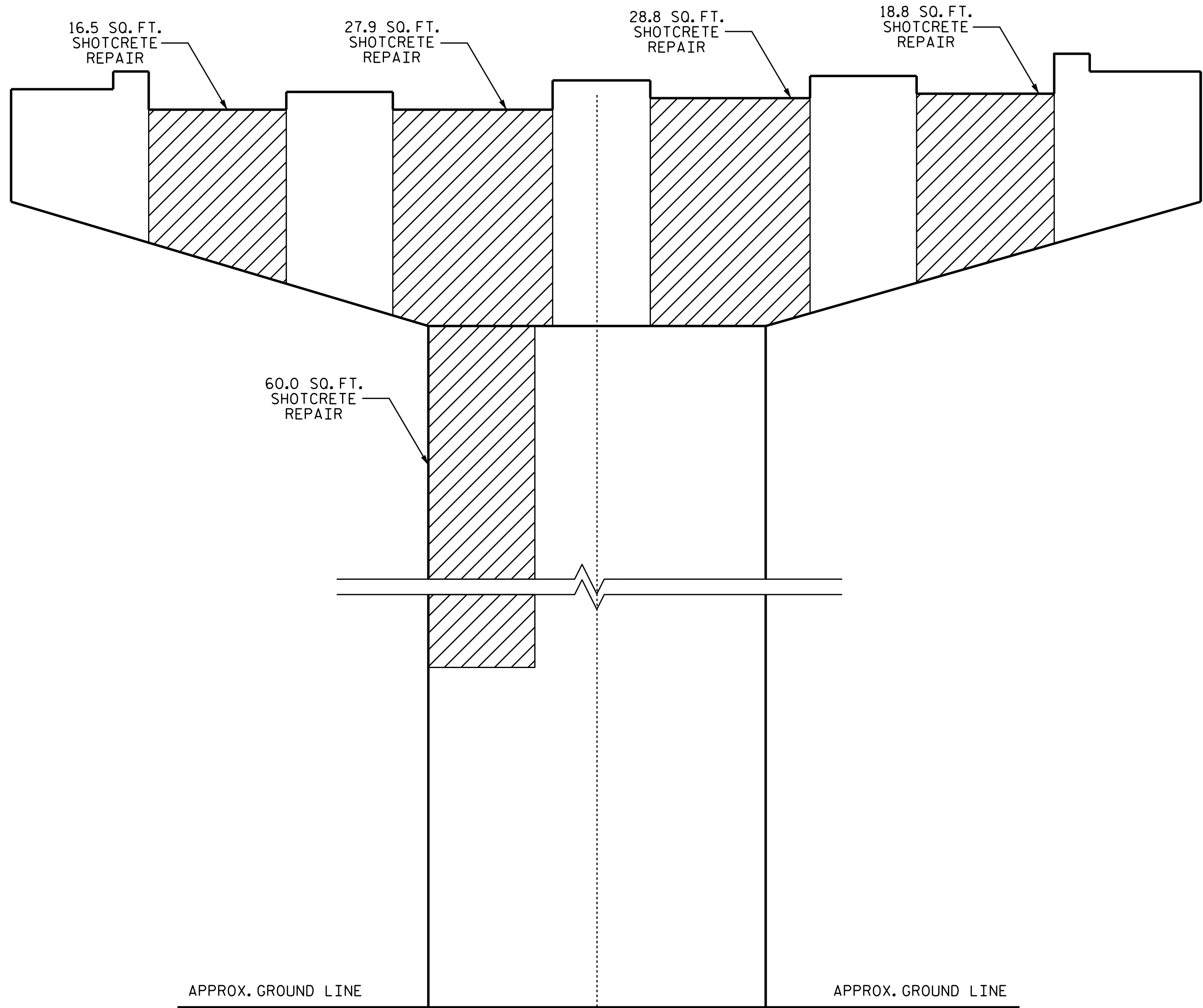
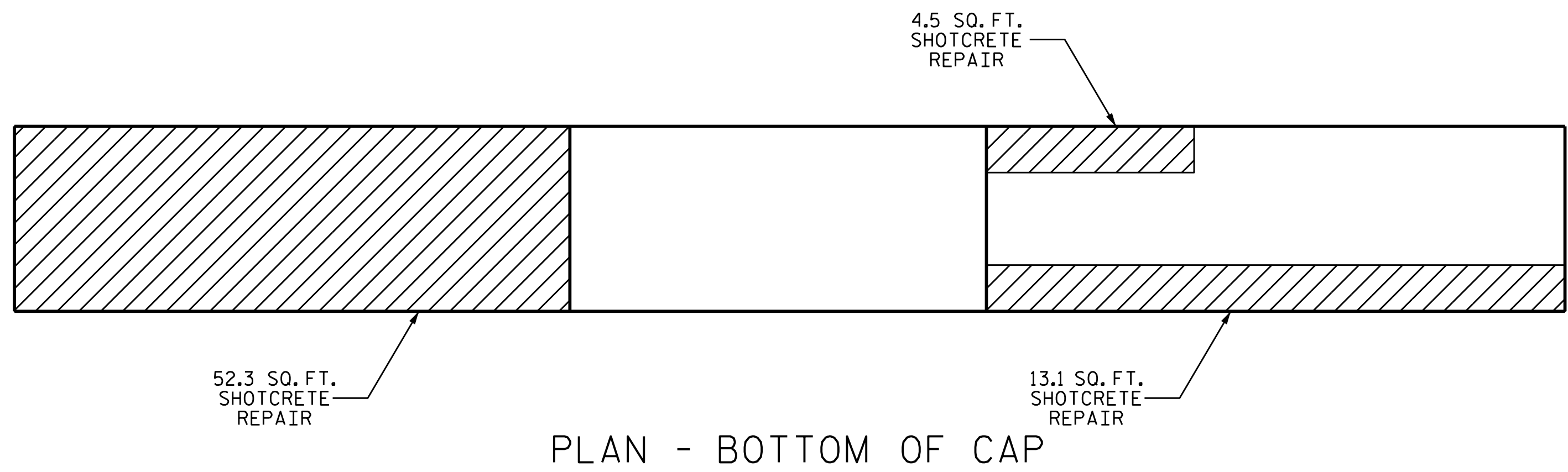


SUBSTRUCTURE  
BENT 3  
SPAN C FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			56



AS-BUILT REPAIR QUANTITY TABLE

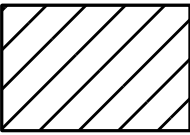
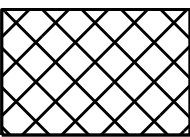

REPAIRS BENT 3 (D FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	174.0	87.0		
COLUMN	90.0	45.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	0.0			
COLUMN	0.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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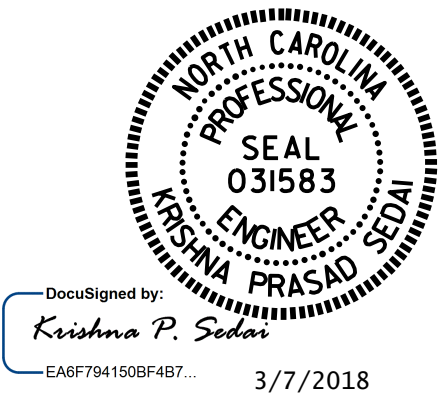
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- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 2

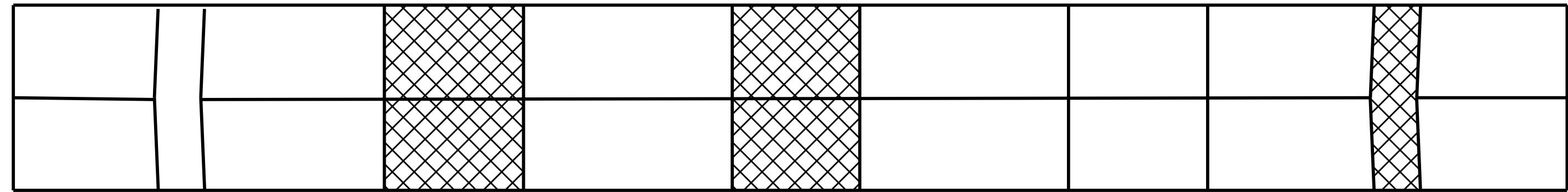


SUBSTRUCTURE  
BENT 3  
SPAN D FACE

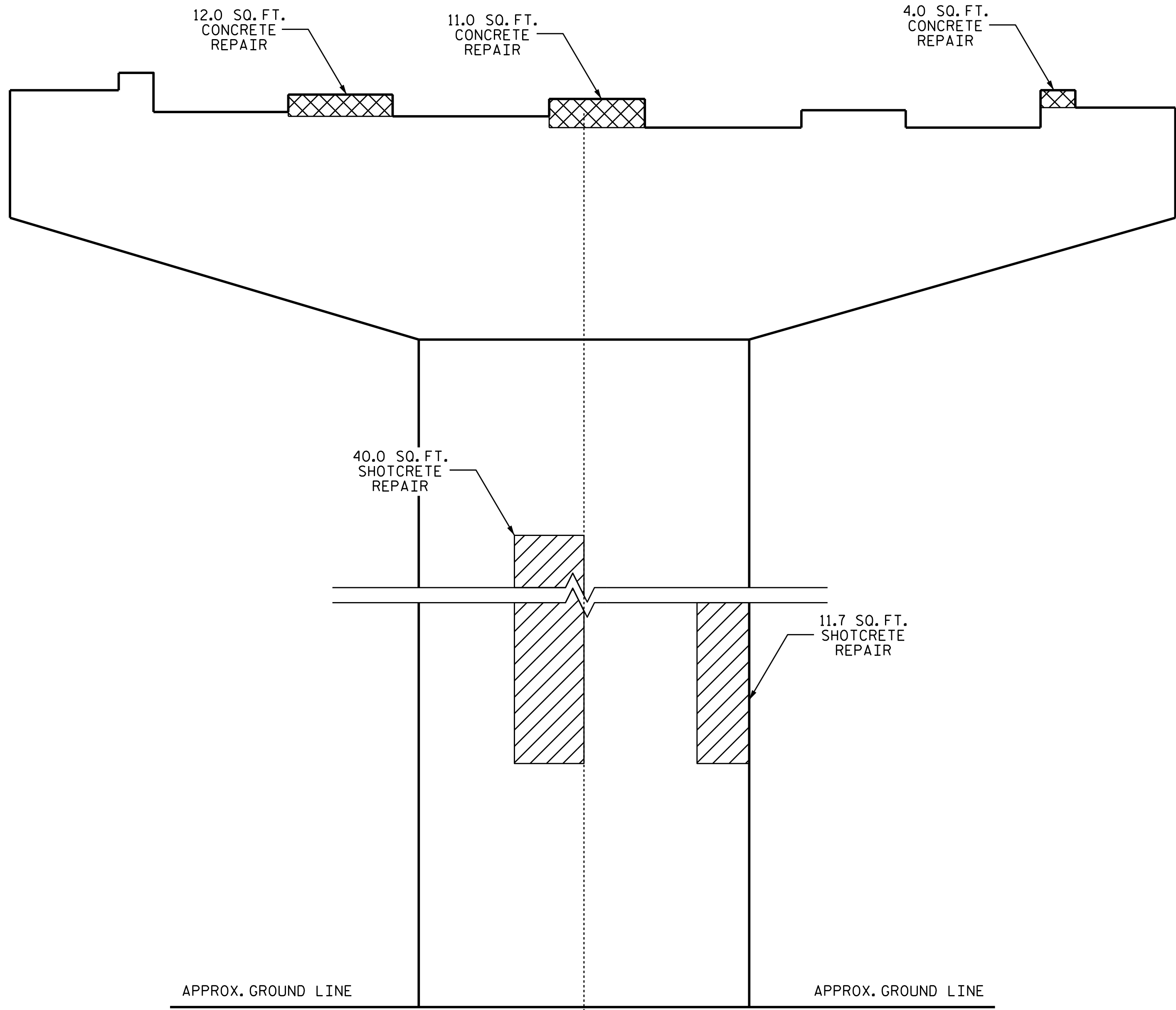
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			
2			4			56



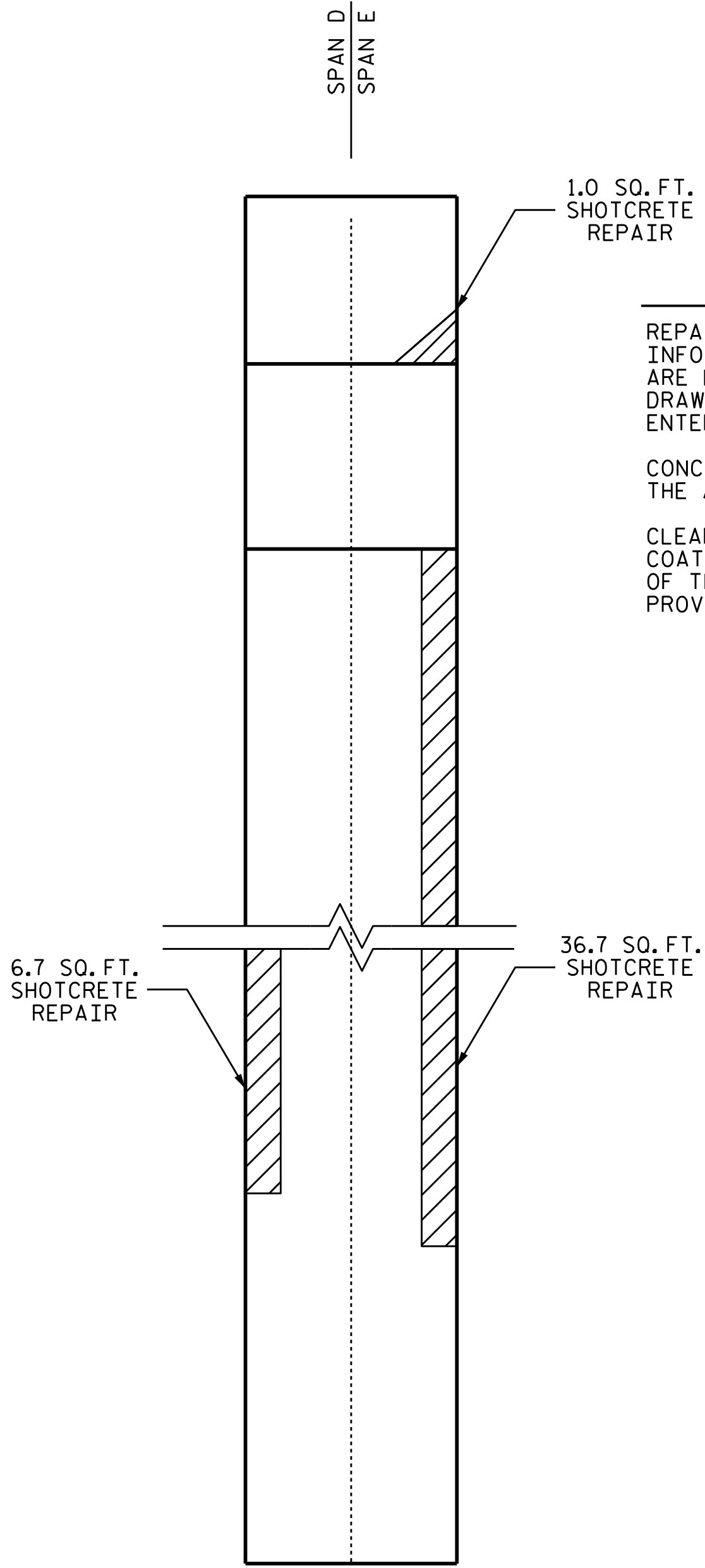
PLAN - TOP OF CAP



ELEVATION

SPAN E

SPAN D



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 4 (D FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	96.1	48.1		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	27.0	13.5		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

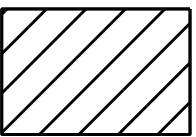
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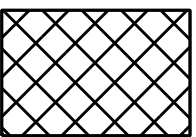
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SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



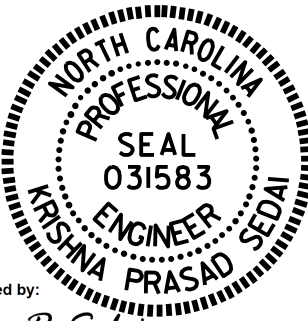
ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5

ROCKINGHAM COUNTY

BRIDGE NO. 30

SHEET 1 OF 2



DocuSigned by:  
Krishna P. Sadas  
EA6F7B4150BF4B7... 3/7/2018

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 4  
SPAN D FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-39
2			4			TOTAL SHEETS 56



3.7 SQ. FT.  
SHOTCRETE  
REPAIR

PLAN - BOTTOM OF CAP

139.3 SQ. FT.  
SHOTCRETE  
REPAIR

APPROX. GROUND LINE

APPROX. GROUND LINE

ELEVATION

SPAN D

SPAN E

SPAN E  
SPAN D

AS-BUILT REPAIR QUANTITY TABLE

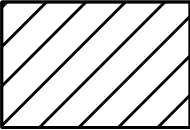
REPAIRS BENT 4 (E FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	3.7	1.9		
COLUMN	139.3	69.7		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

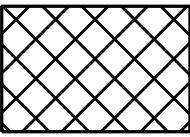
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SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 2

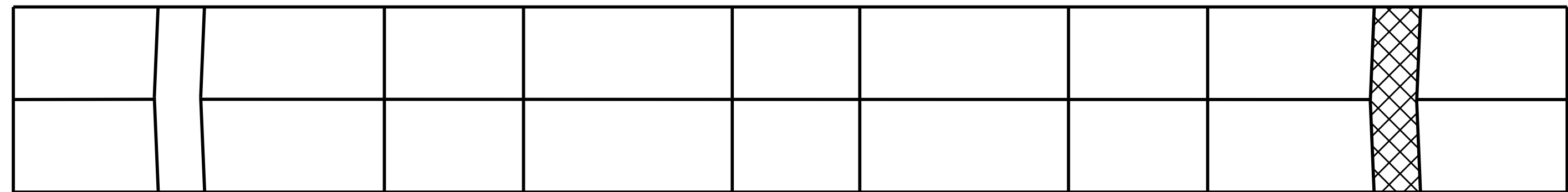


SUBSTRUCTURE  
BENT 4  
SPAN E FACE

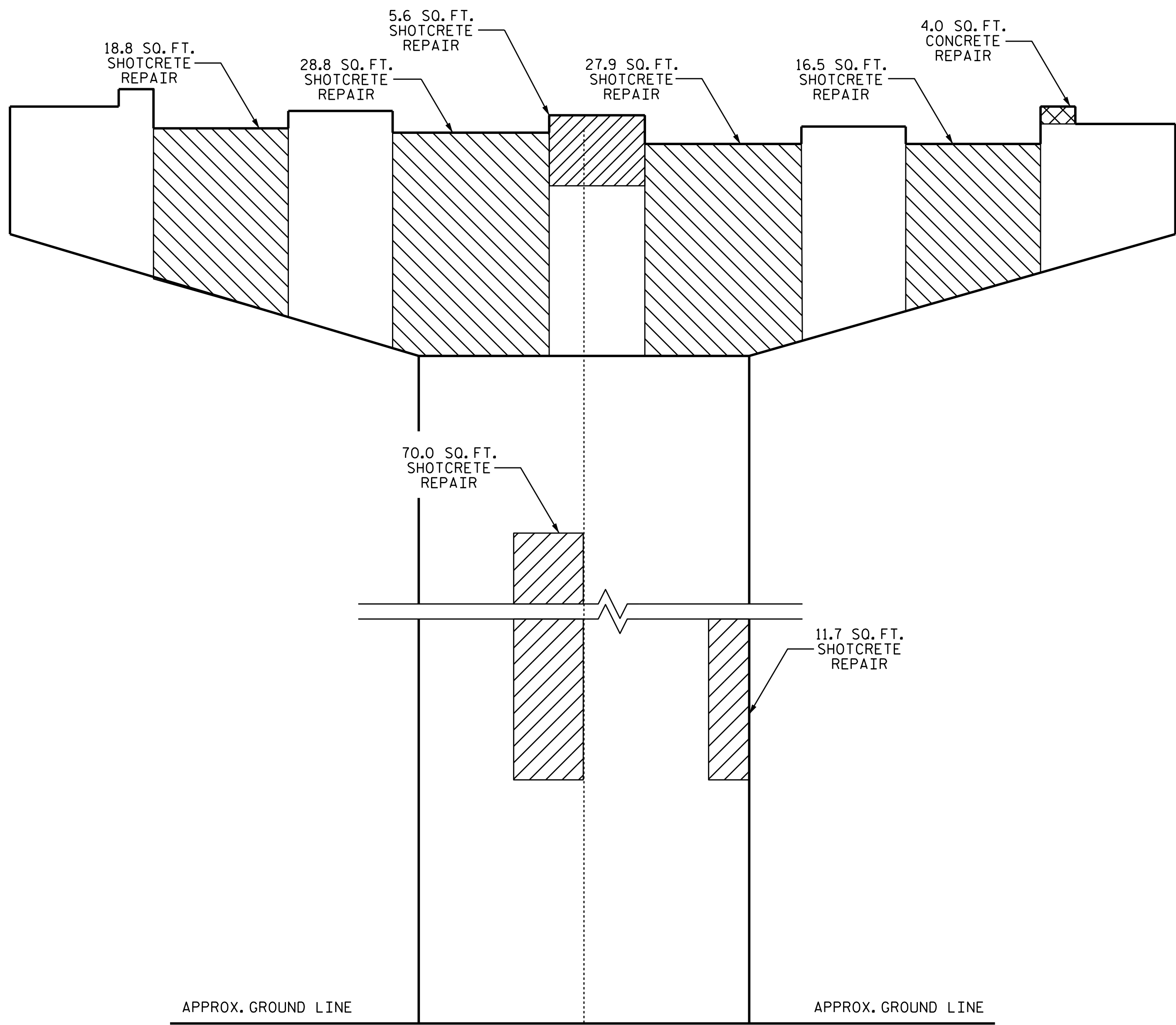
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-40
2			4			TOTAL SHEETS 56



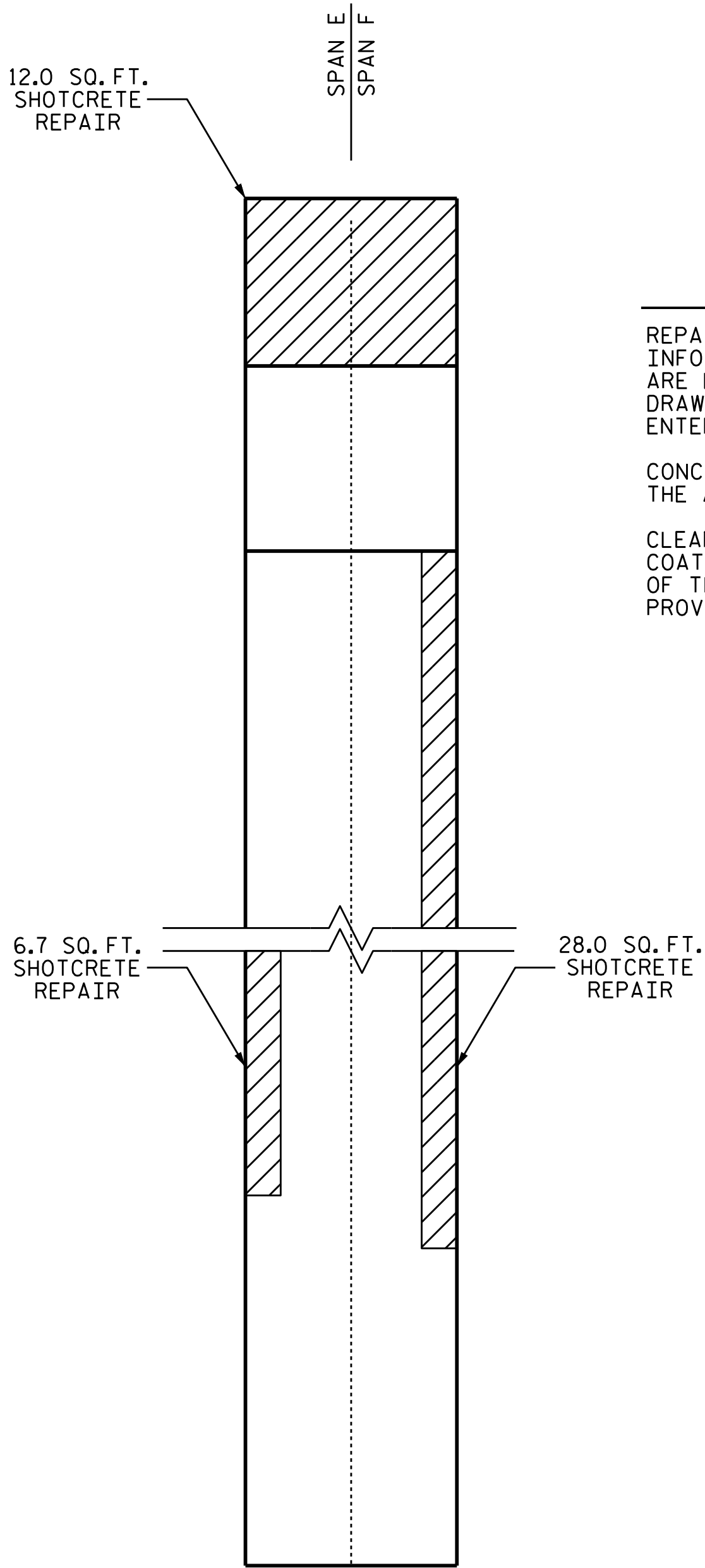
PLAN - TOP OF CAP



ELEVATION

SPAN F

SPAN E



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 5 (E FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	109.6	54.8		
COLUMN	116.4	58.2		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	4.0	2.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

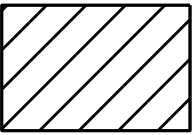
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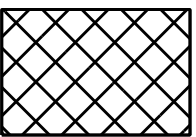
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SHOTCRETE REPAIR AREA



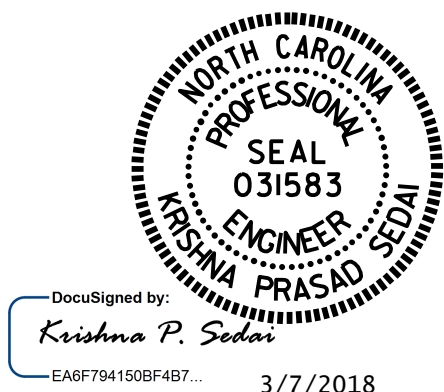
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 1 OF 2

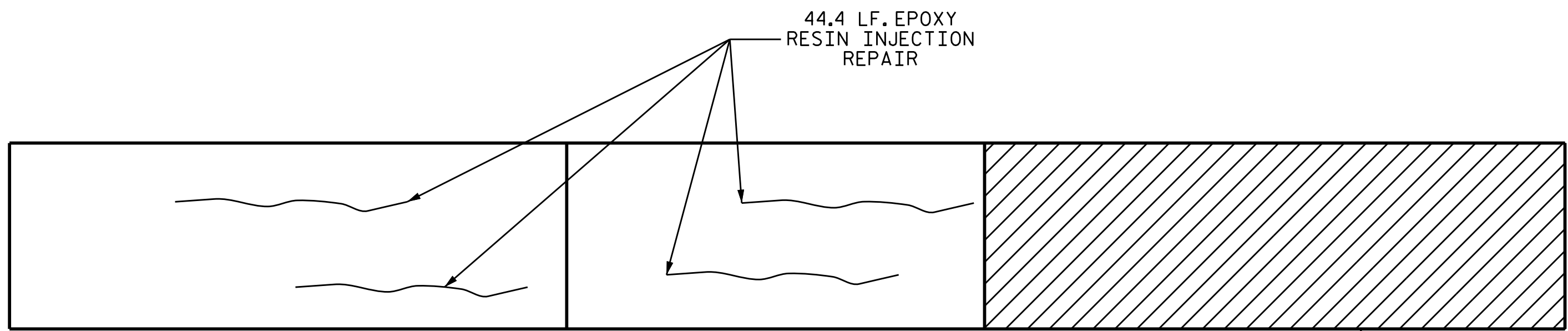


SUBSTRUCTURE  
BENT 5  
SPAN E FACE

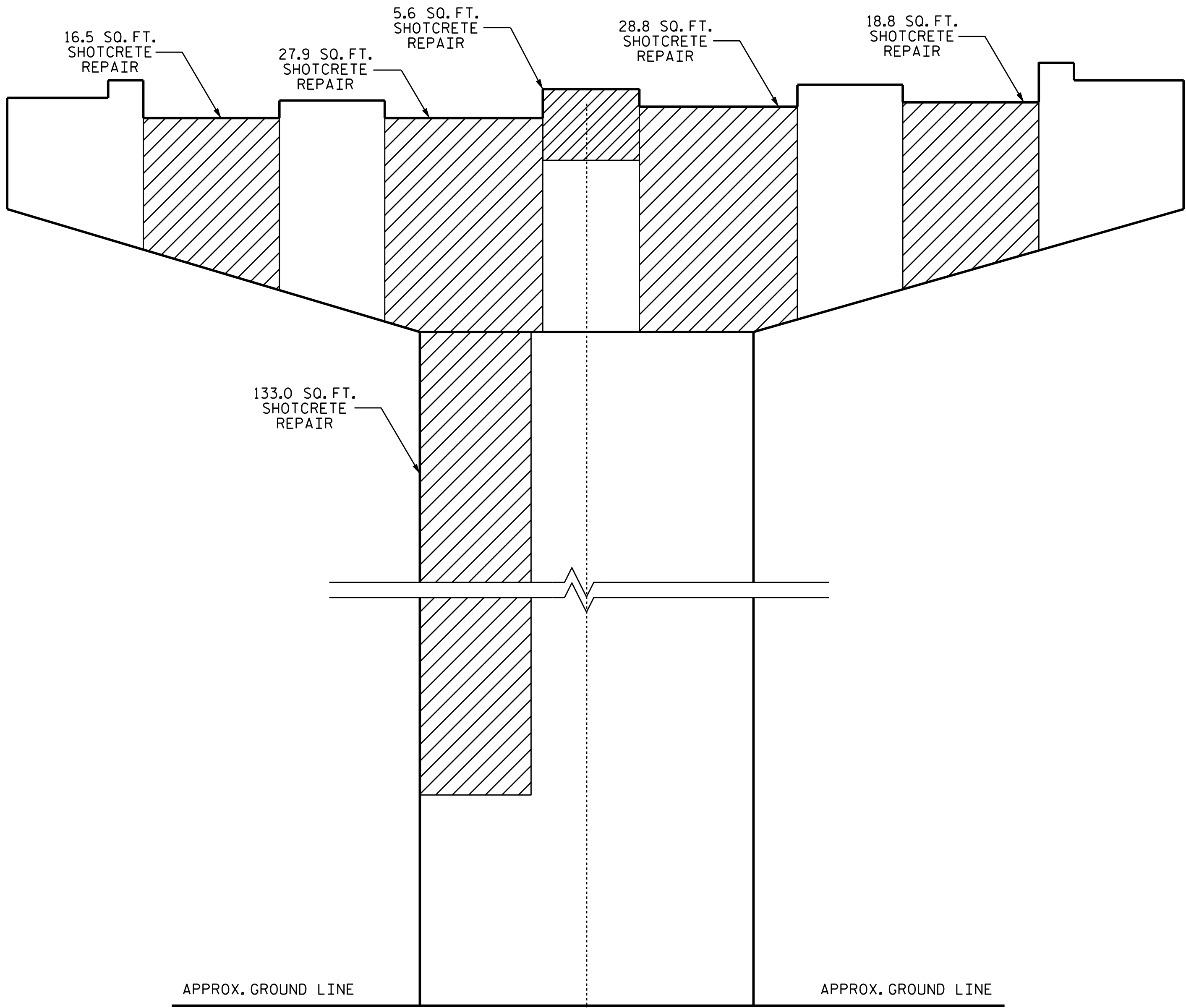
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
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FINAL UNLESS ALL  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS 56
2			4			



PLAN - BOTTOM OF CAP



ELEVATION

SPAN E

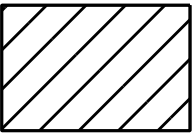
SPAN F

12.0 SQ. FT. SHOTCRETE REPAIR

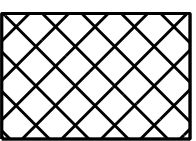
30.0 LF. EPOXY RESIN INJECTION REPAIR

25 SQ. FT. SHOTCRETE REPAIR

SPAN E  
SPAN E



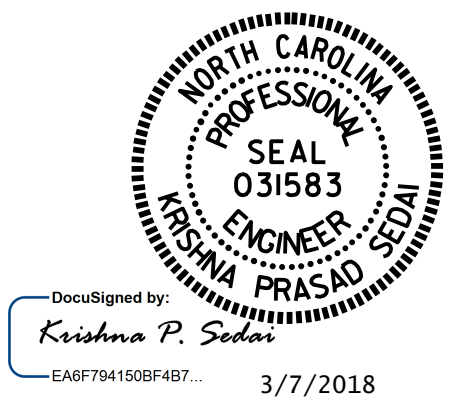
SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS 56
2			4			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

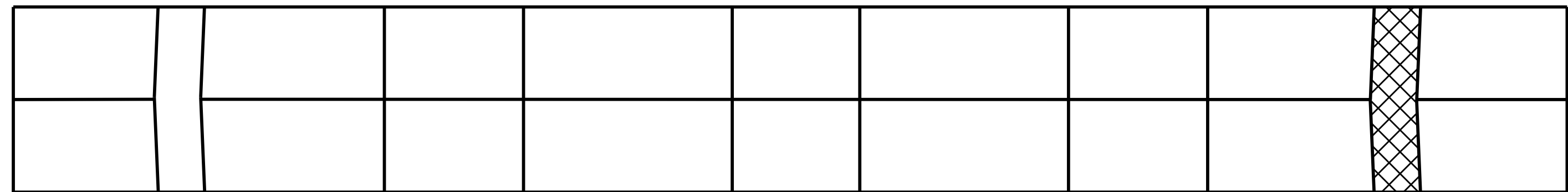
SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

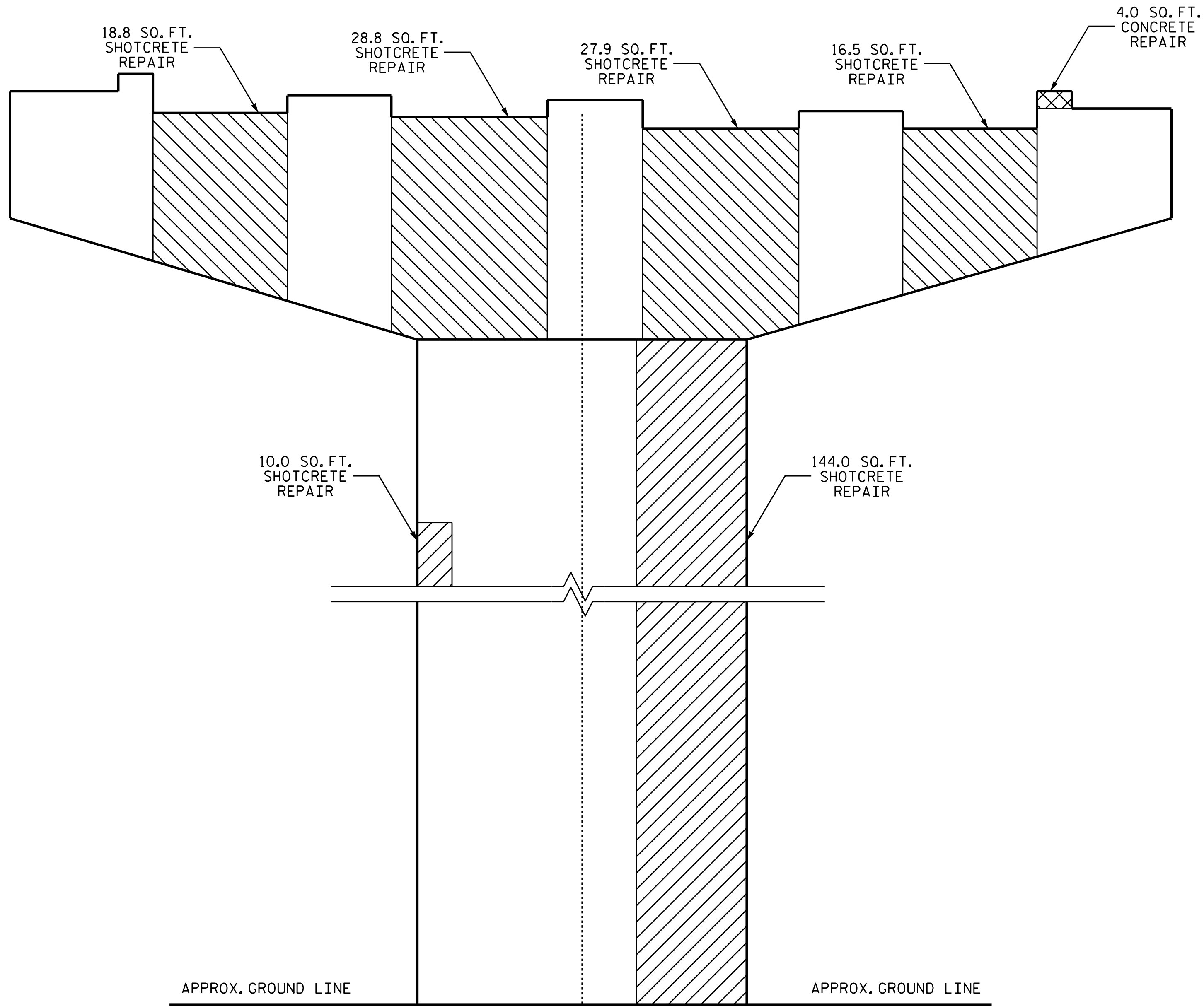
SUBSTRUCTURE  
BENT 5  
SPAN F FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17





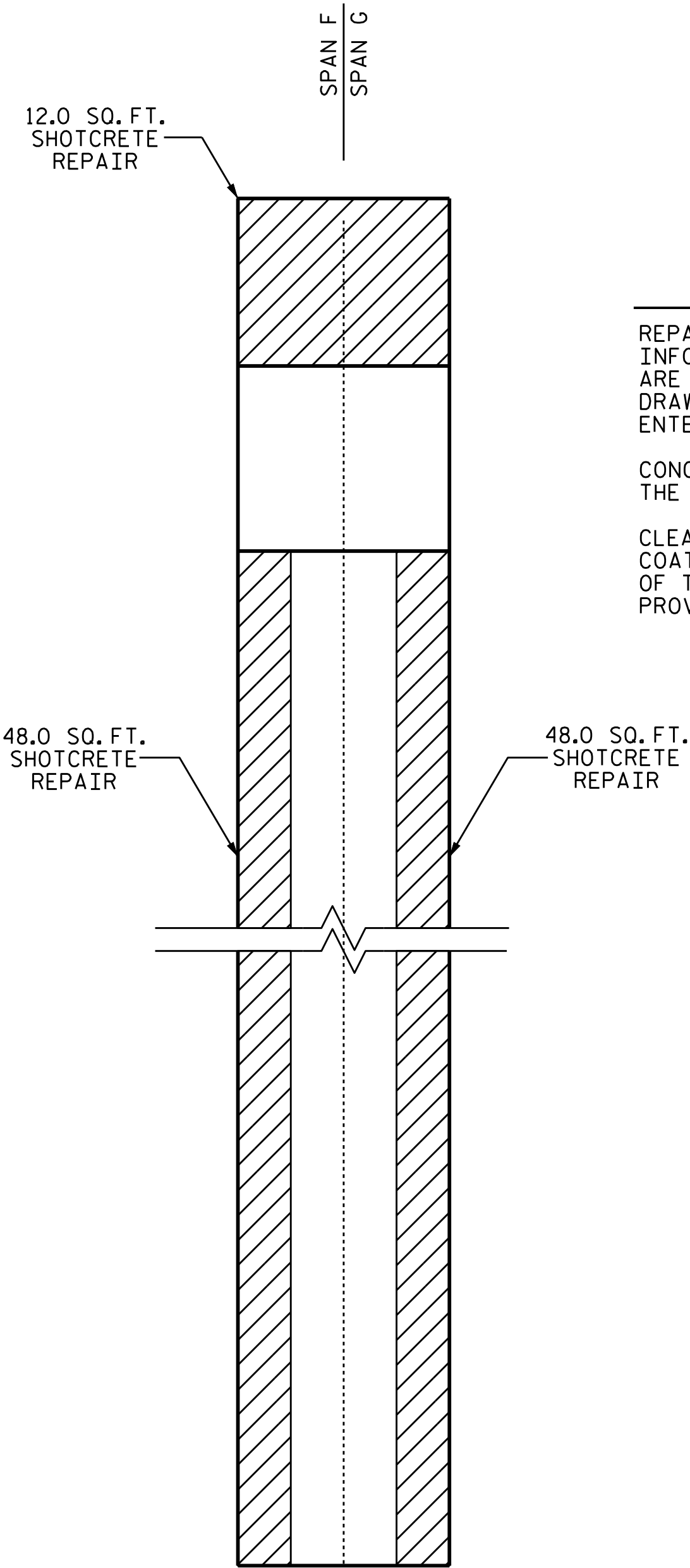
PLAN - TOP OF CAP



ELEVATION

SPAN G

SPAN F



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 6 (F FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	104.0	52.0		
COLUMN	250.0	125.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	4.0	2.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

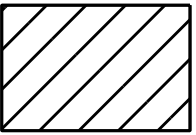
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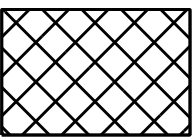
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CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARING. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



SHOTCRETE REPAIR AREA



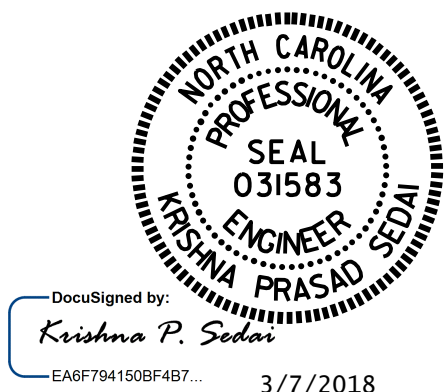
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 1 OF 2



SUBSTRUCTURE  
BENT 6  
SPAN F FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

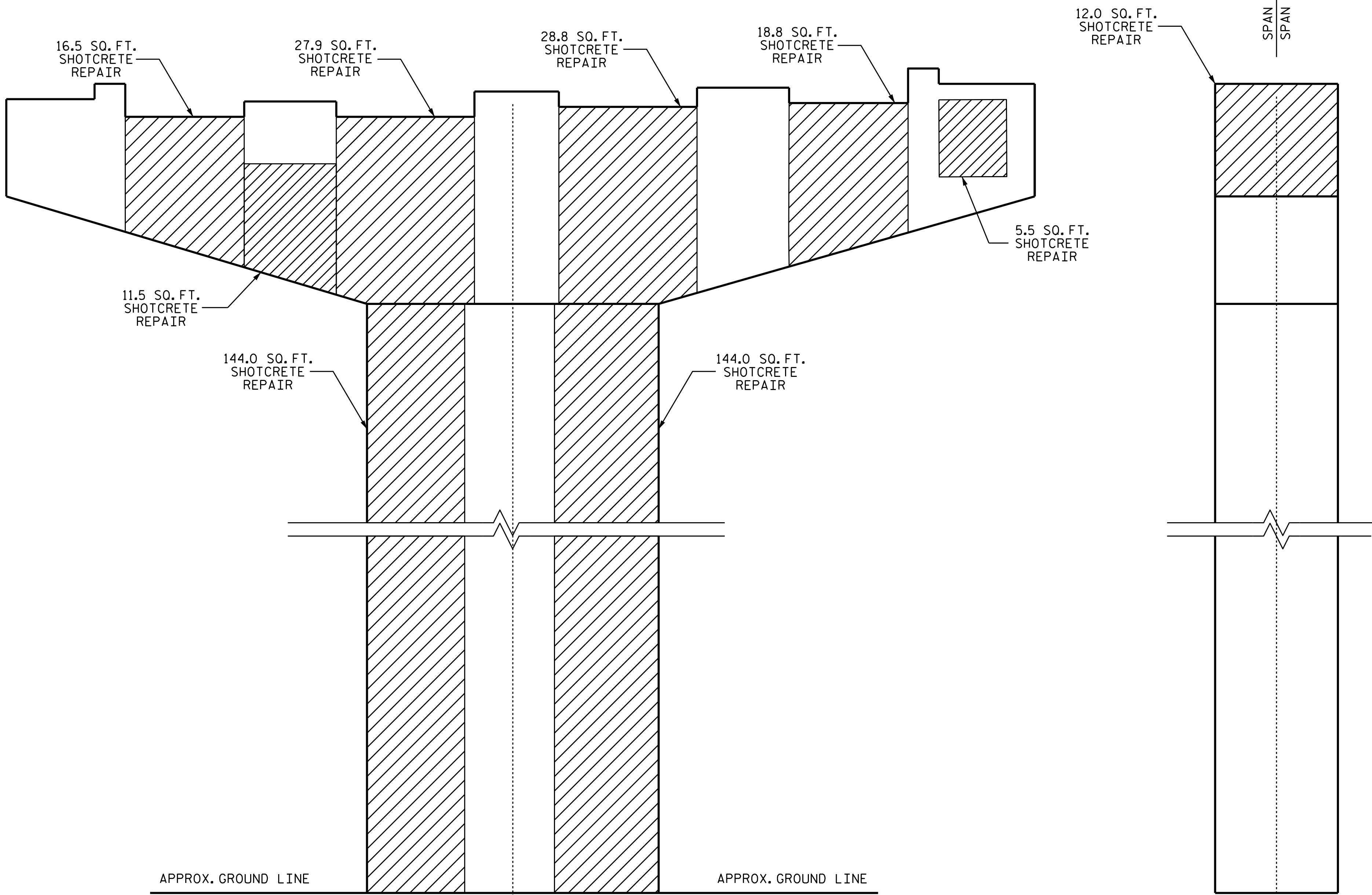
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			S-43
2			4			TOTAL SHEETS 56

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SPAN F

SPAN G

PLAN - BOTTOM OF CAP



ELEVATION

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

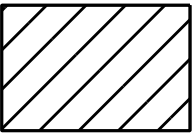
REPAIRS BENT 6 (G FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	121.0	60.5		
COLUMN	288.0	144.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

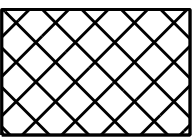
NOTES

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SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



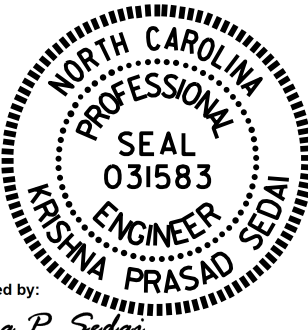
ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5

ROCKINGHAM COUNTY

BRIDGE NO. 30

SHEET 2 OF 2



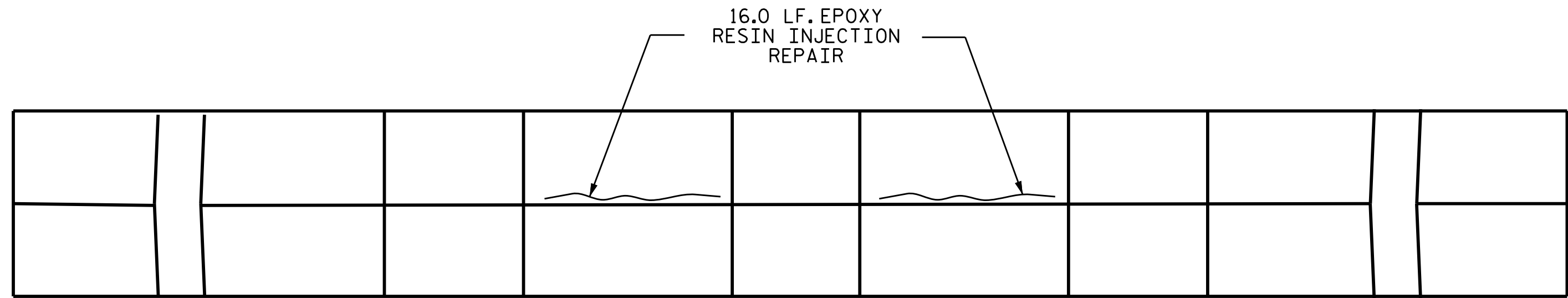
DocuSigned by  
Krishna P. Sadas  
EA6FT94150BF4BT... 3/7/2018

SUBSTRUCTURE  
BENT 6  
SPAN G FACE

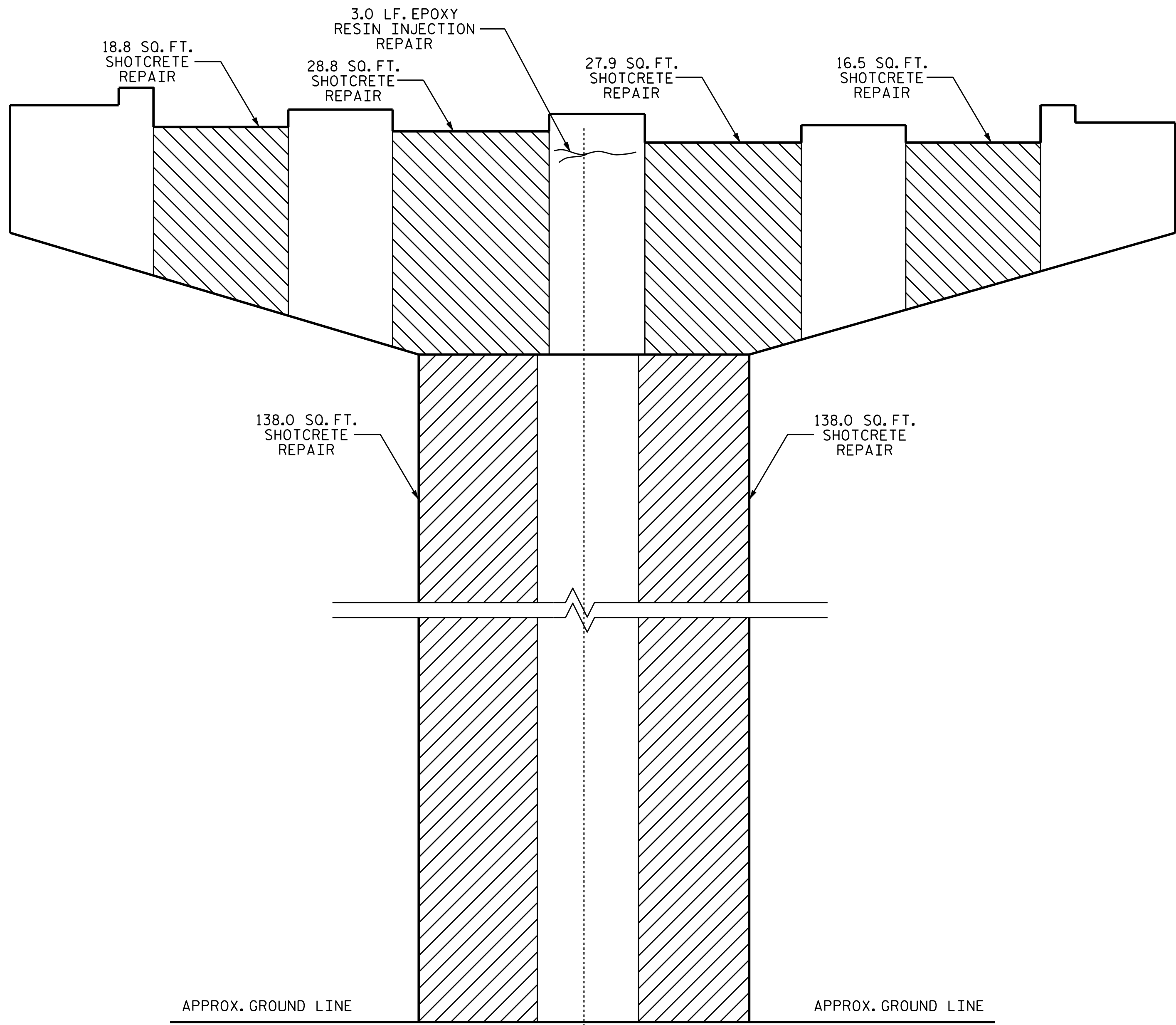
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-44
1			3			TOTAL SHEETS
2			4			56



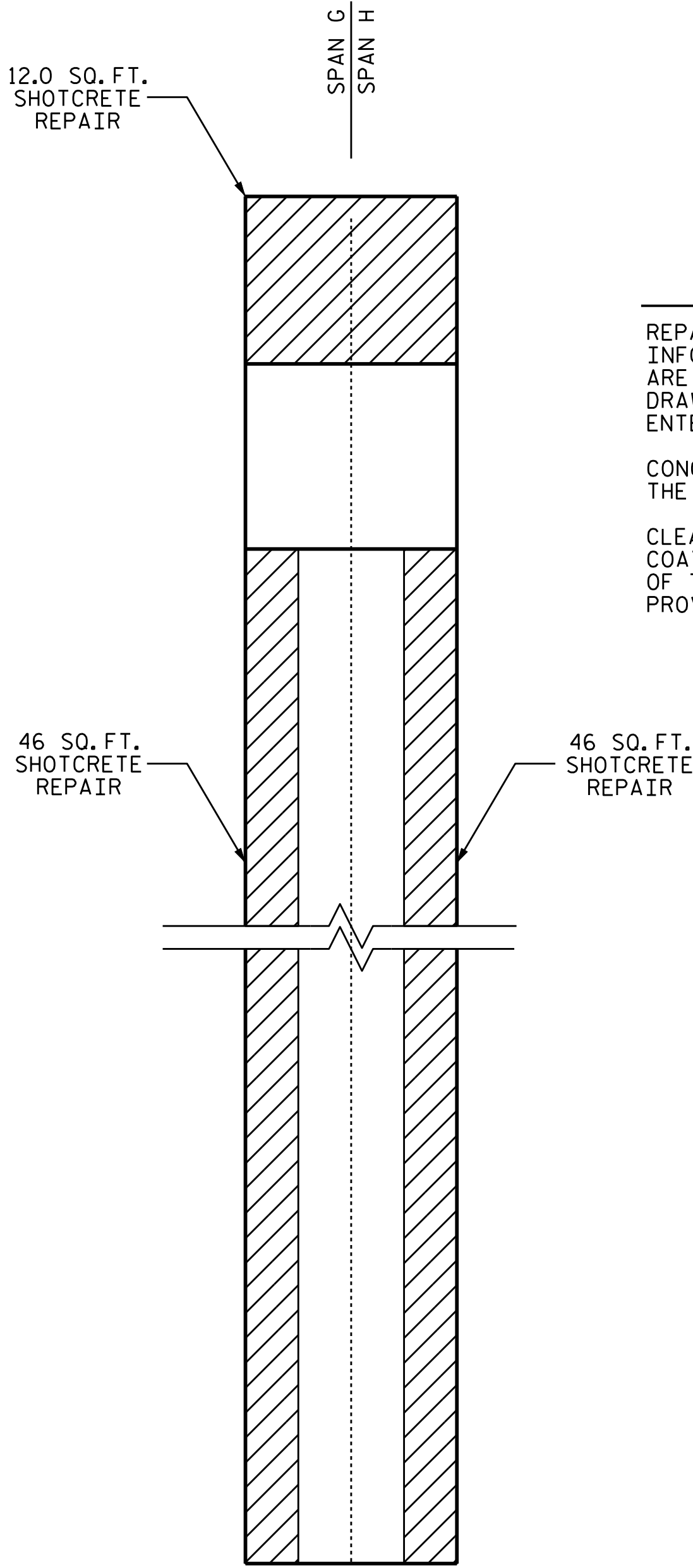
PLAN - TOP OF CAP



ELEVATION

SPAN H

SPAN G



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 7 (G FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	104.0	52.0		
COLUMN	368.0	184.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	19.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

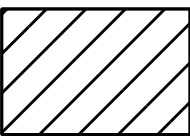
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NOTES

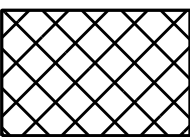
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SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



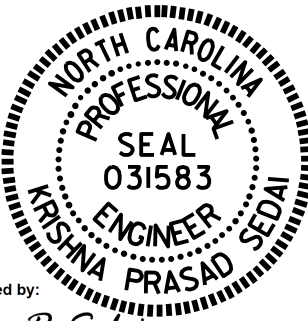
ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5

ROCKINGHAM COUNTY

BRIDGE NO. 30

SHEET 1 OF 2



DocuSigned by:  
Krishna P. Sadas  
EA6F7B4150BF4B7...  
3/7/2018

SUBSTRUCTURE  
BENT 7  
SPAN G FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

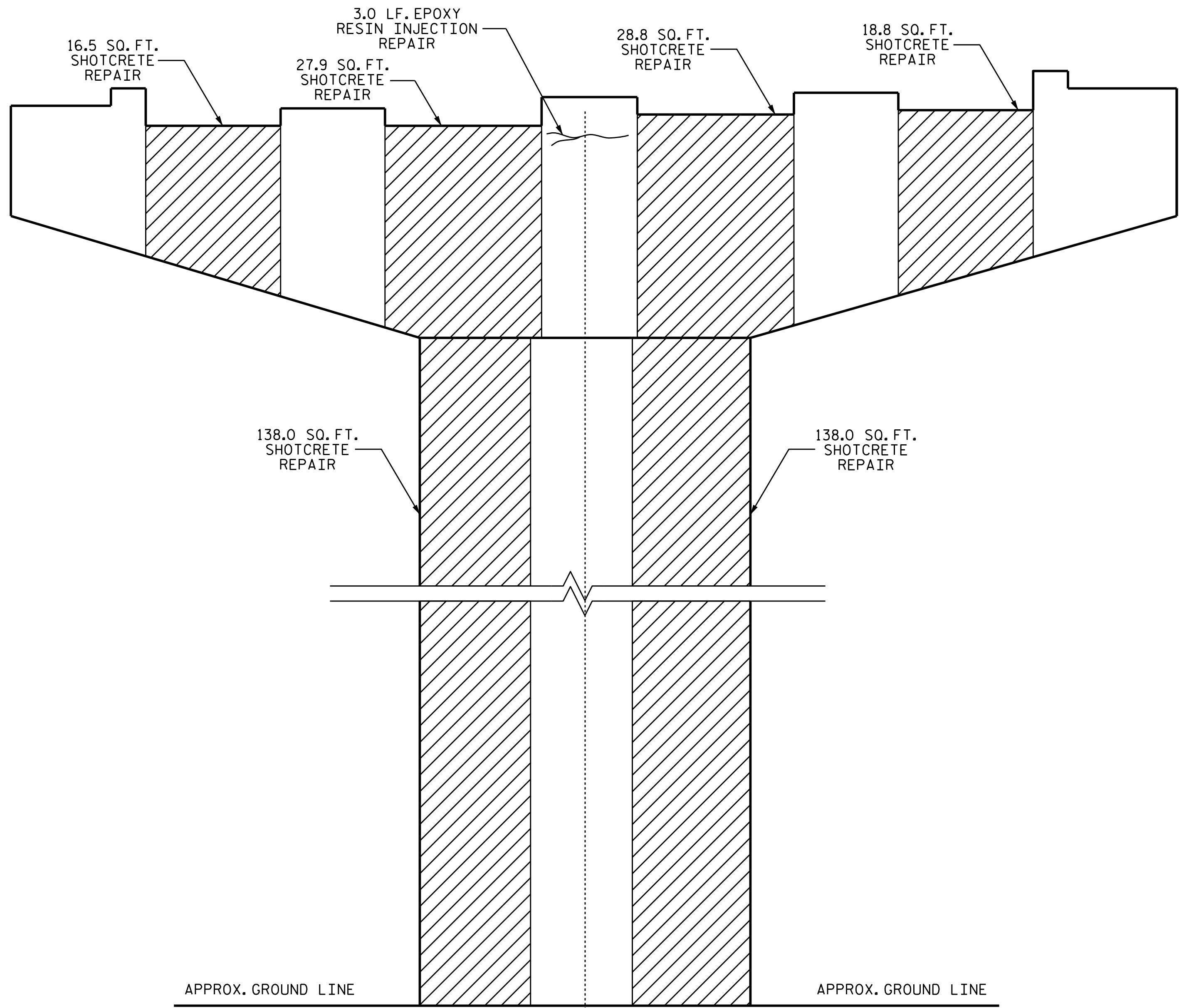
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 56





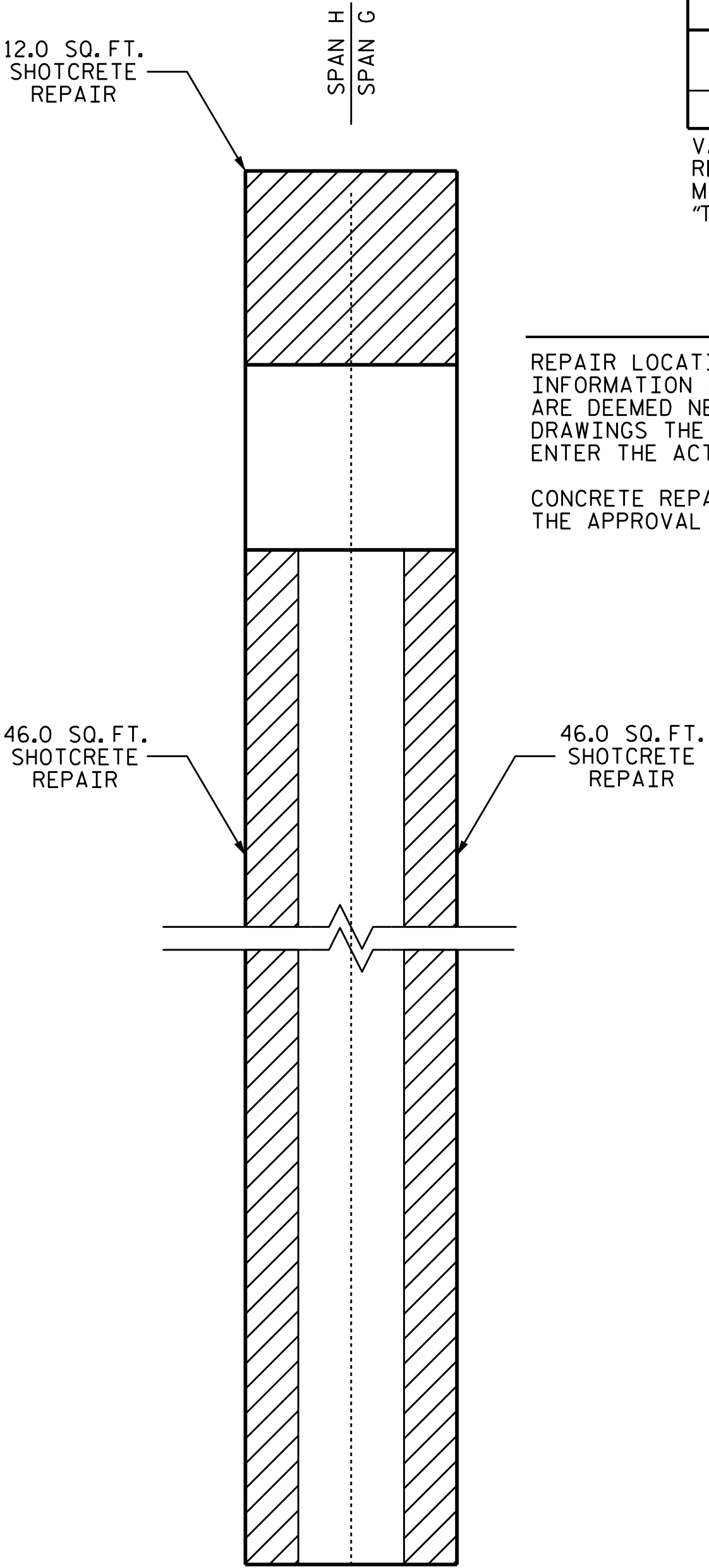
PLAN - BOTTOM OF CAP



ELEVATION

SPAN G

SPAN H



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

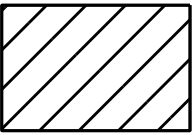
REPAIRS BENT 7 (H FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	208.6	104.3		
COLUMN	368.0	184.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	3.0			
COLUMN	0.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

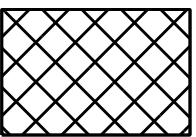
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SHOTCRETE REPAIR AREA



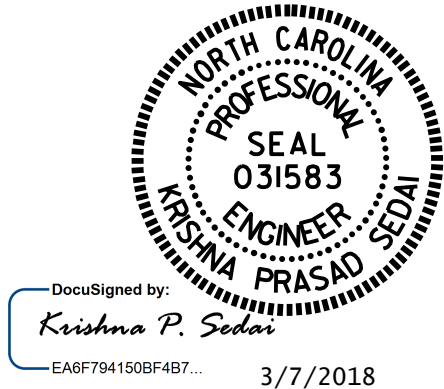
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 2

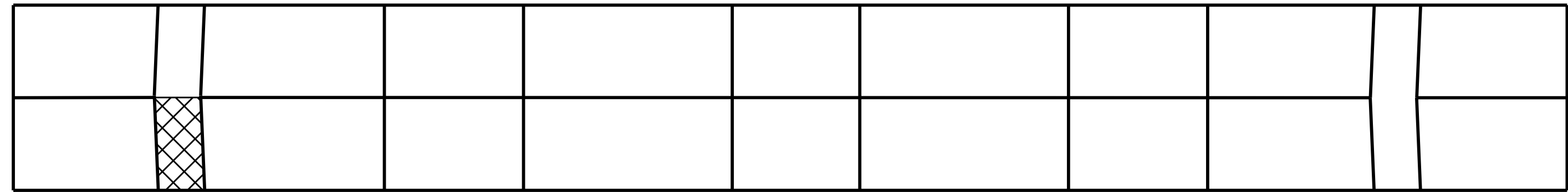


SUBSTRUCTURE  
BENT 7  
SPAN H FACE

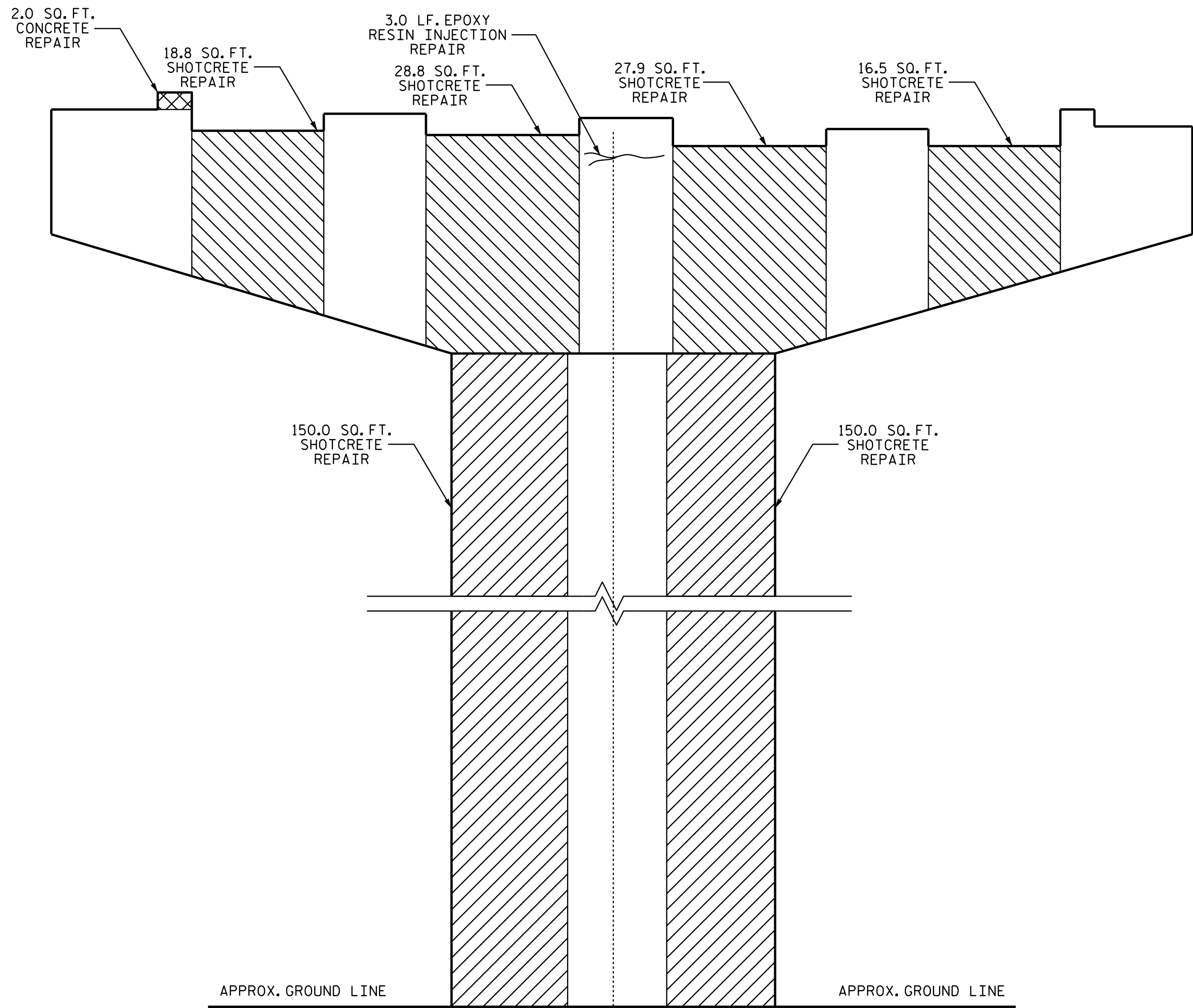
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
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2			4			56



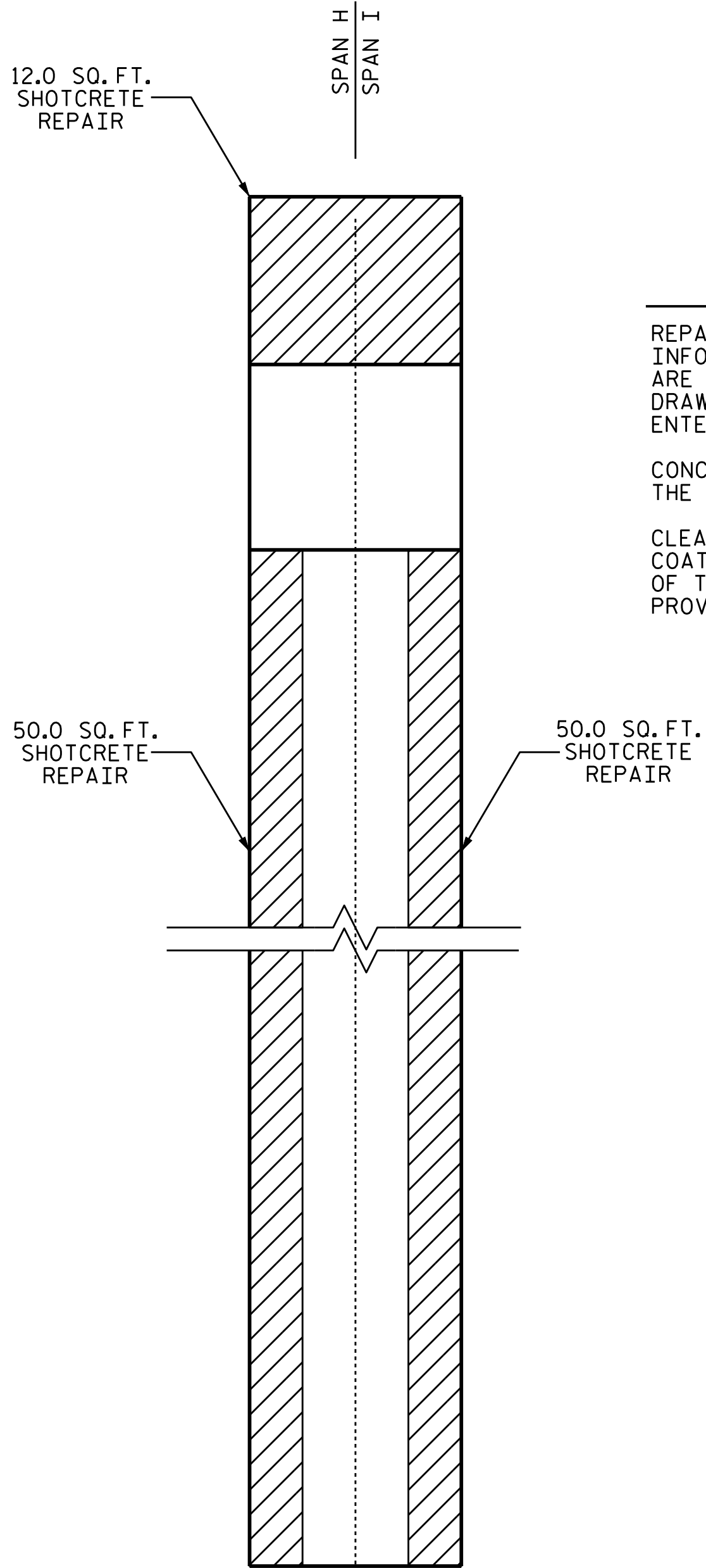
PLAN - TOP OF CAP



ELEVATION

SPAN I

SPAN H



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 8 (H FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	104.0	52.0		
COLUMN	400.0	200.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	2.0	1.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	3.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

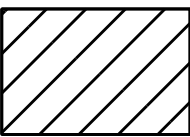
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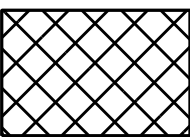
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SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



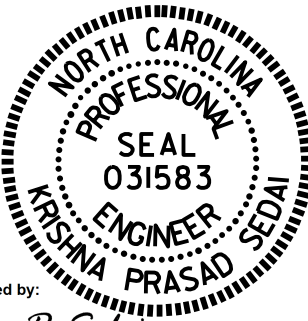
ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5

ROCKINGHAM COUNTY

BRIDGE NO. 30

SHEET 1 OF 2



DocuSigned by:  
Krishna P. Sadas  
EA6F7B4150BF4B7... 3/7/2018

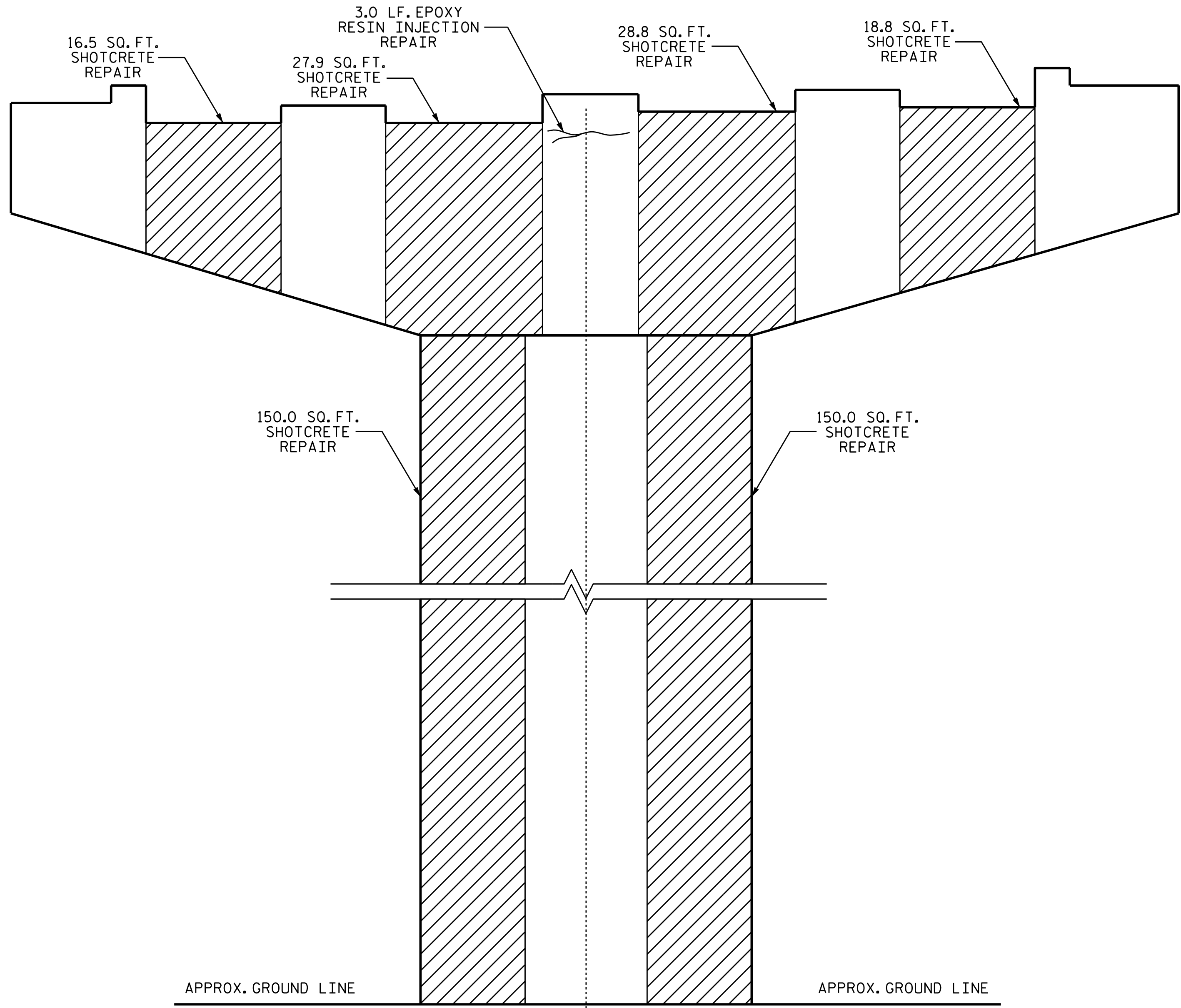
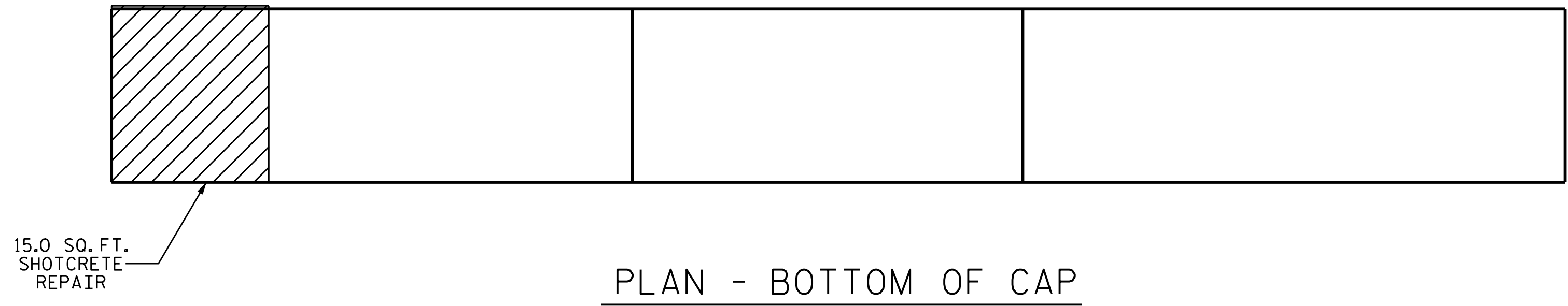
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 8  
SPAN H FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

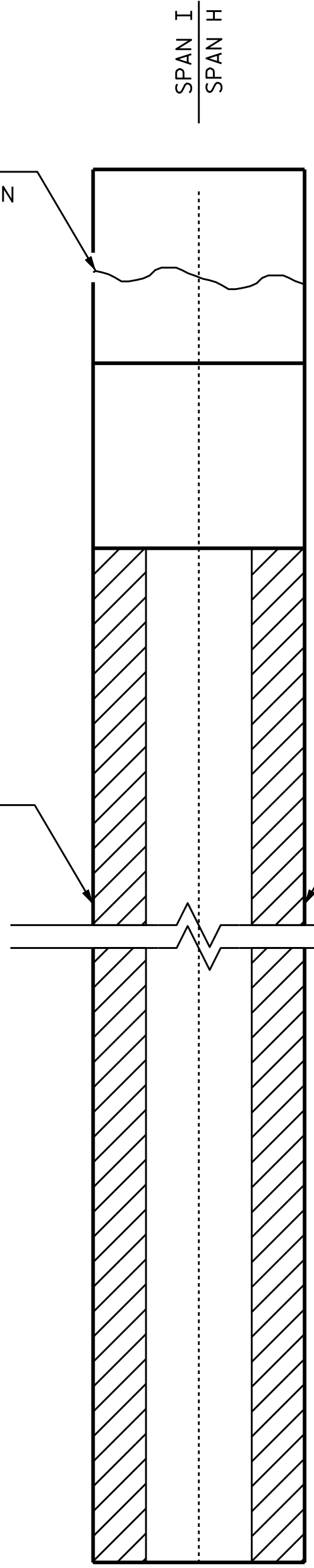
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FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-47
2			4			TOTAL SHEETS 56



ELEVATION

SPAN H  
SPAN I



END VIEW

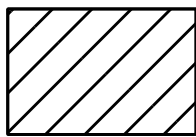
AS-BUILT REPAIR QUANTITY TABLE				
REPAIRS BENT 8 (I FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	107.0	53.5		
COLUMN	400.0	200.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	7.0			
COLUMN	0.0			

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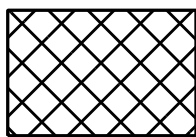
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SHOTCRETE REPAIR AREA



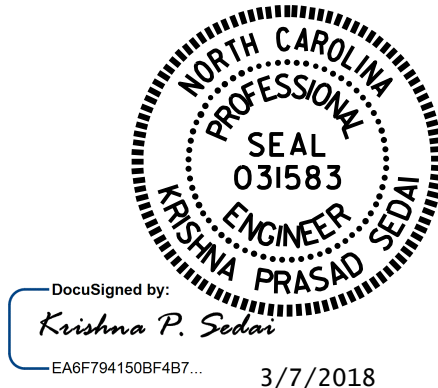
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 2



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

BENT 8

SPAN I FACE

REVISIONS

NO.

BY:

DATE:

NO.

BY:

DATE:

SHEET NO.

S-48

1

3

TOTAL SHEETS

2

4

56

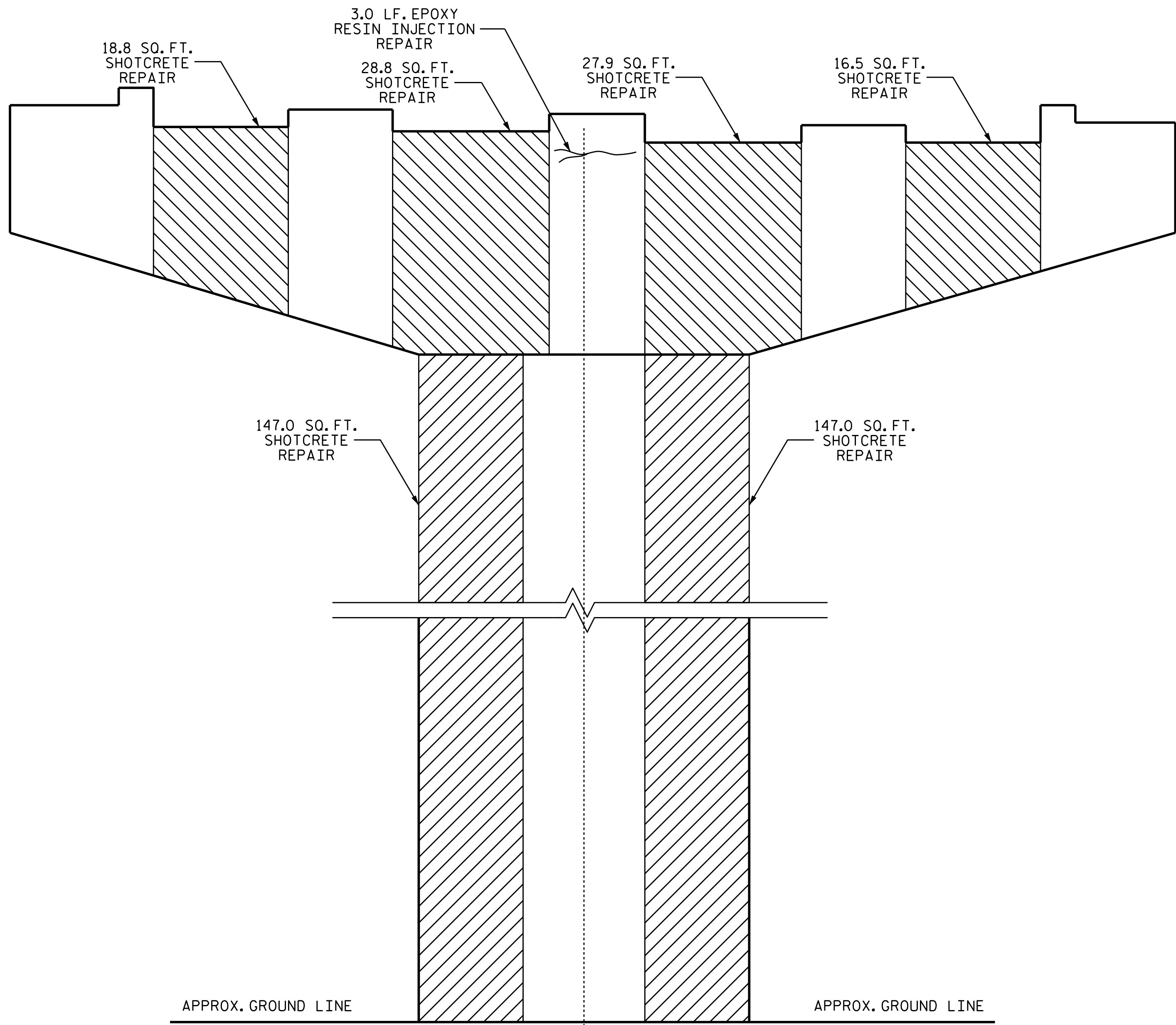
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CHECKED BY : A. SORSENGINH DATE : 8-17

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SIGNATURES COMPLETED





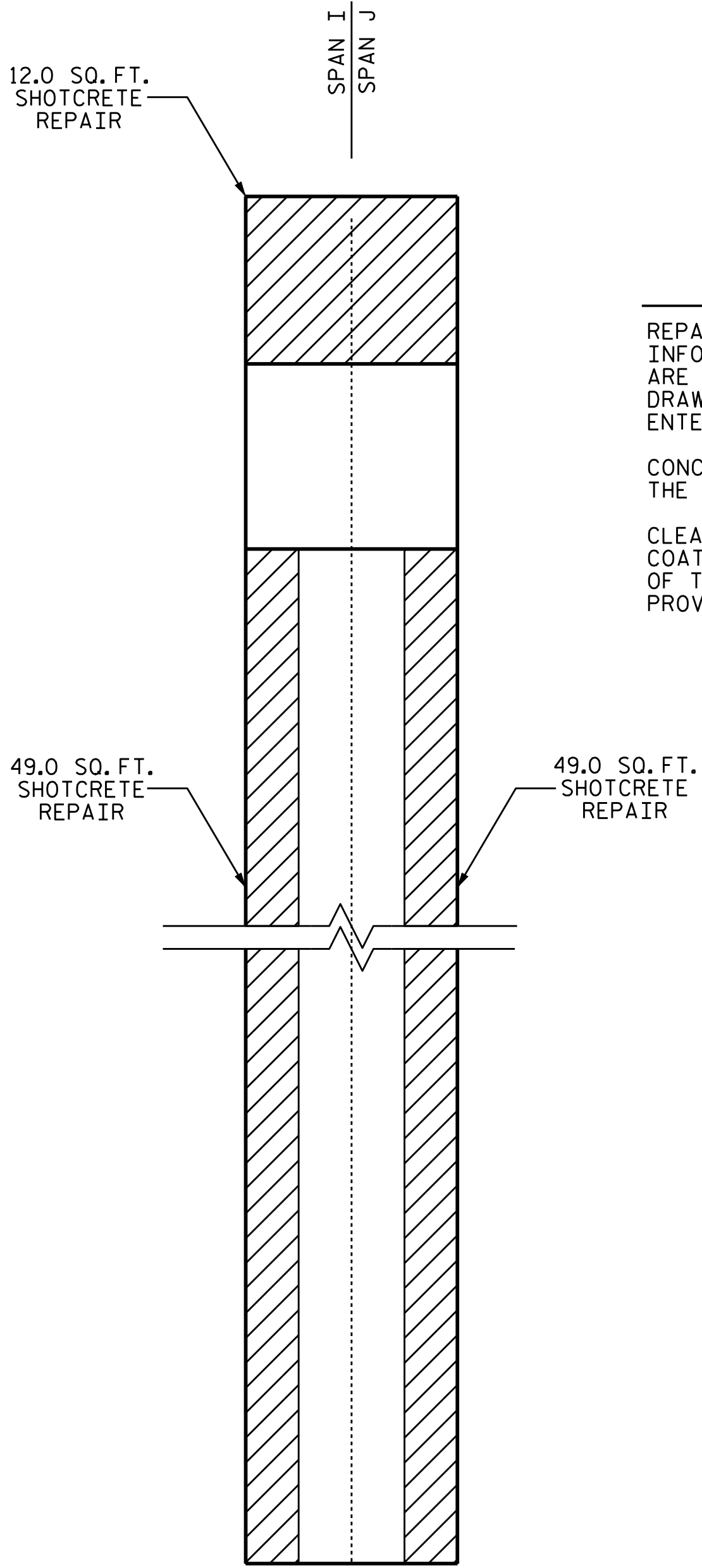
PLAN - TOP OF CAP



ELEVATION

SPAN J

SPAN I



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 9 (I FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	104.0	52.0		
COLUMN	392	196.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	3.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

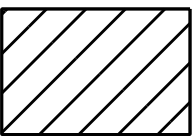
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NOTES

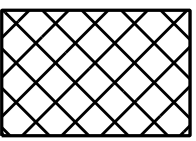
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SHOTCRETE REPAIR AREA



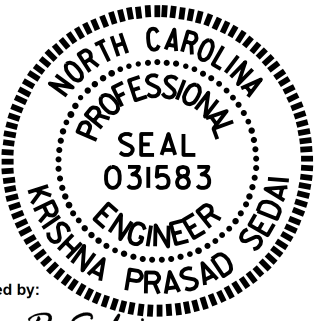
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 1 OF 2



DocuSigned by:  
Krishna P. Sadas  
EA6F7B4150BF4B7... 3/7/2018

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 9  
SPAN I FACE

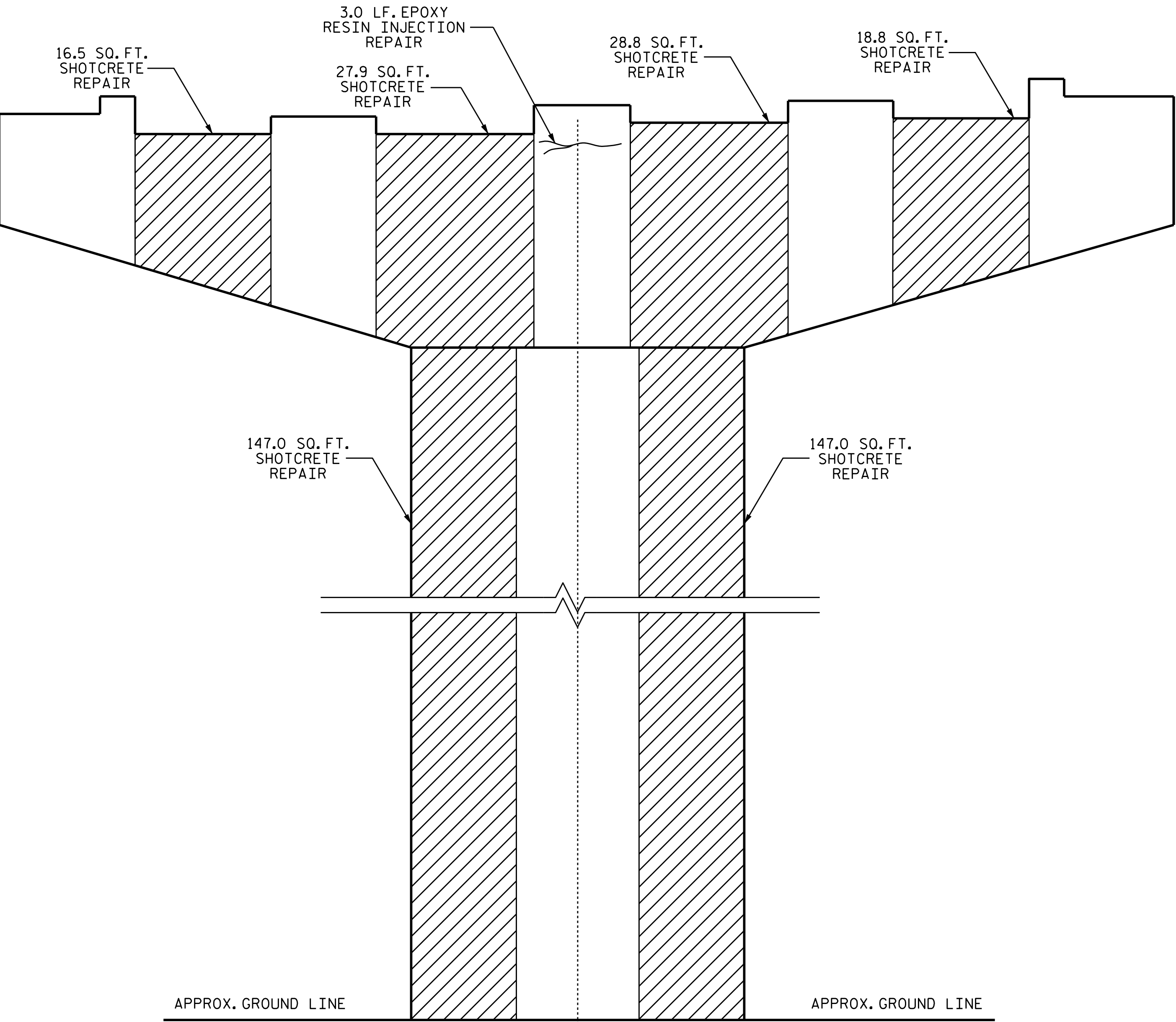
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FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 56

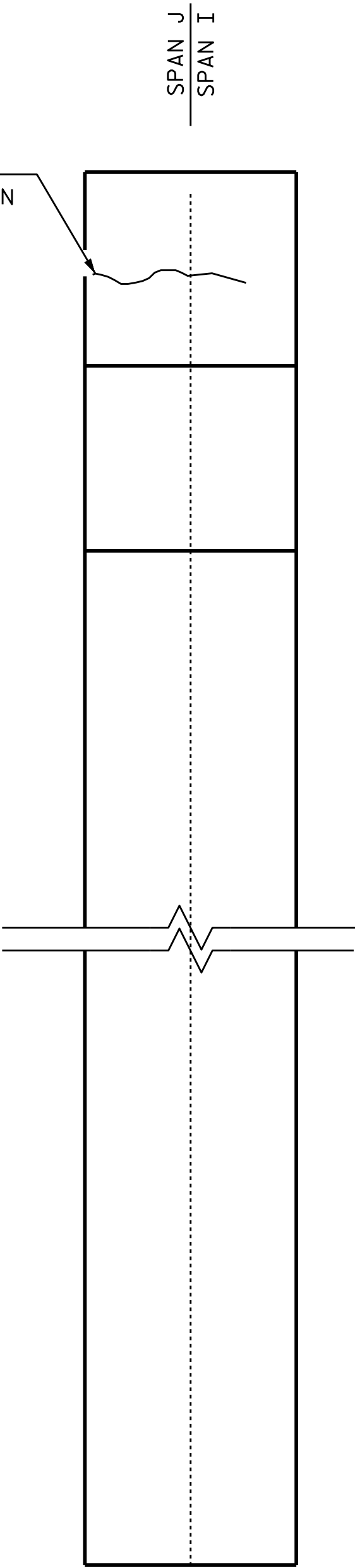


PLAN - BOTTOM OF CAP



ELEVATION

SPAN I  
SPAN J



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

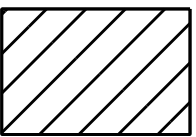
REPAIRS BENT 9 (J FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	92.0	46.0		
COLUMN	294.0	147.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	6.0			
COLUMN	0.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

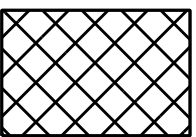
NOTES

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CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.



SHOTCRETE REPAIR AREA



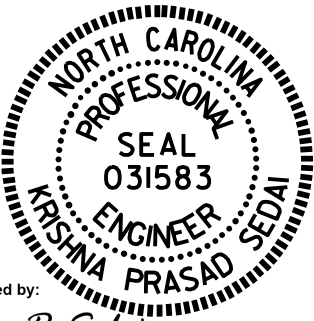
CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 2



DocuSigned by:  
Krishna P. Sadas  
EA6F7B4150BF4B7... 3/7/2018

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 9  
SPAN J FACE

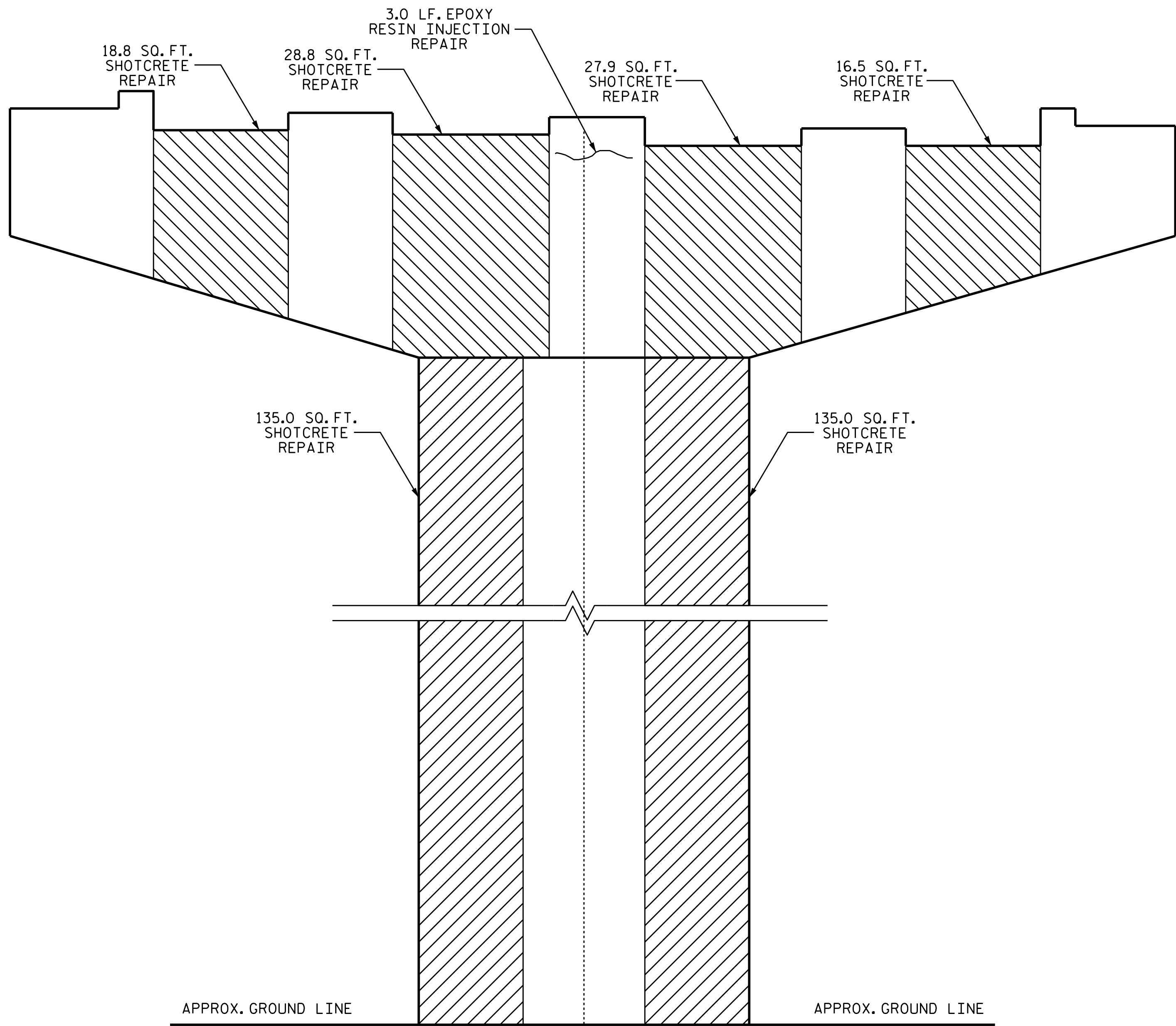
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			56



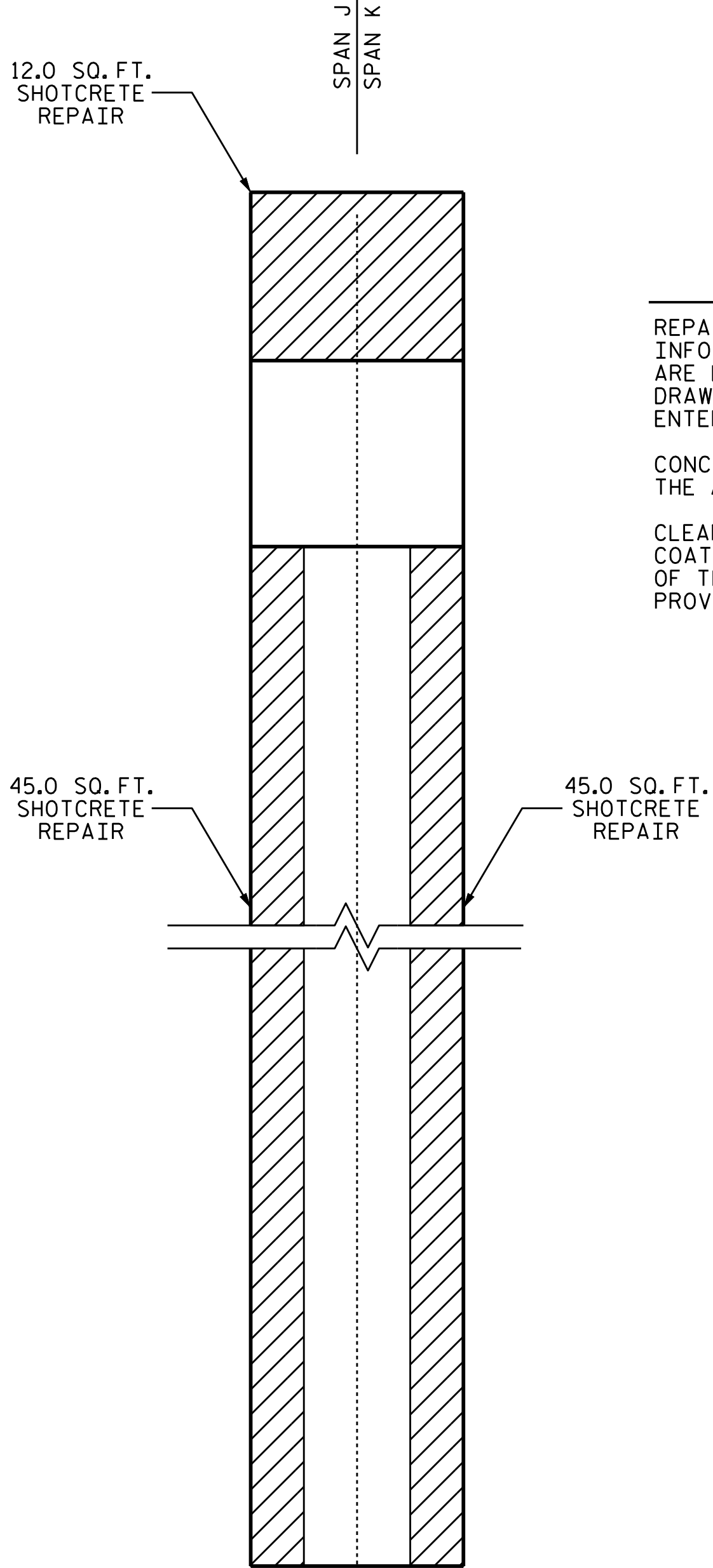
PLAN - TOP OF CAP



ELEVATION

SPAN K

SPAN J



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 10 (J FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	104.0	52.0		
COLUMN	360.0	180.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	3.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

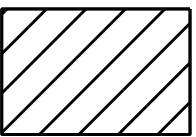
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NOTES

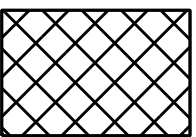
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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARING. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



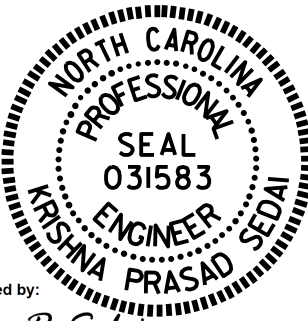
ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5

ROCKINGHAM COUNTY

BRIDGE NO. 30

SHEET 1 OF 2



DocuSigned by:  
Krishna P. Sadas  
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3/7/2018

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 10  
SPAN J FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

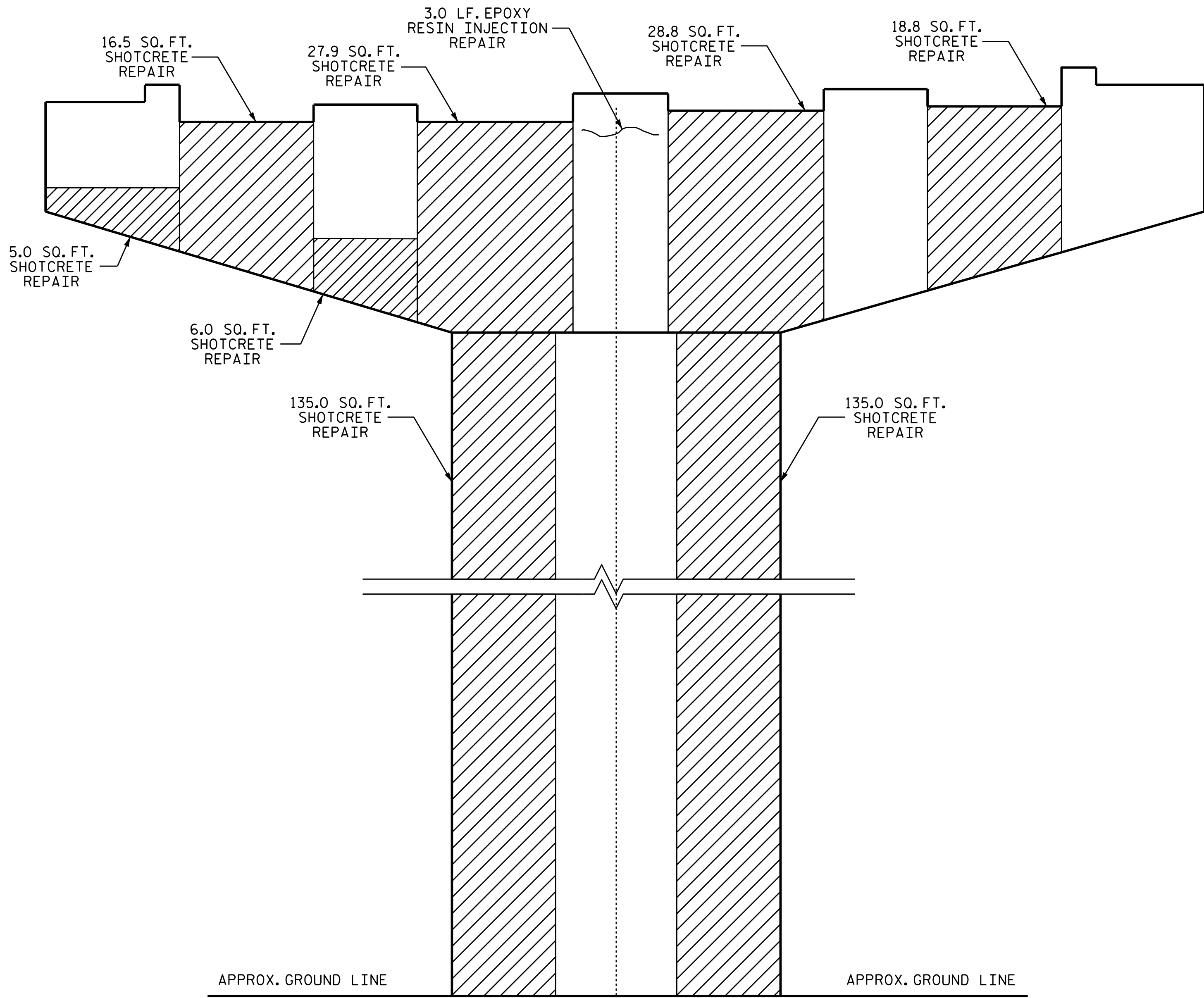
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-51
2			4			TOTAL SHEETS 56





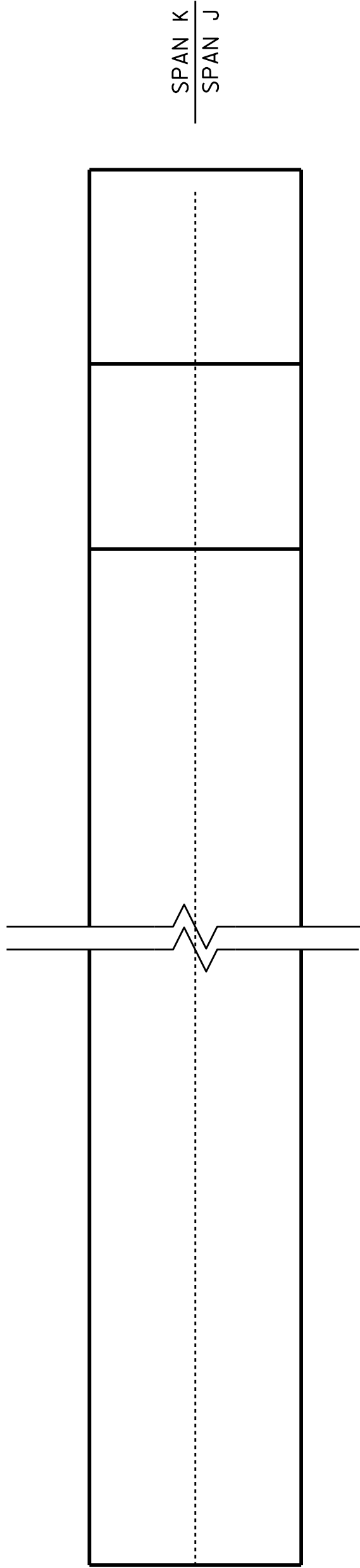
PLAN - BOTTOM OF CAP



ELEVATION

SPAN J

SPAN K



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

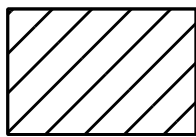
REPAIRS BENT 10 (K FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	155.3	77.7		
COLUMN	270.0	135.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		3.0		
COLUMN		0.0		

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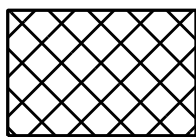
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SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5

ROCKINGHAM COUNTY

BRIDGE NO. 30

SHEET 2 OF 2



DocuSigned by:  
Krishna P. Seda  
EA6F7B4150BF4B7... 3/7/2018

SUBSTRUCTURE  
BENT 10  
SPAN K FACE

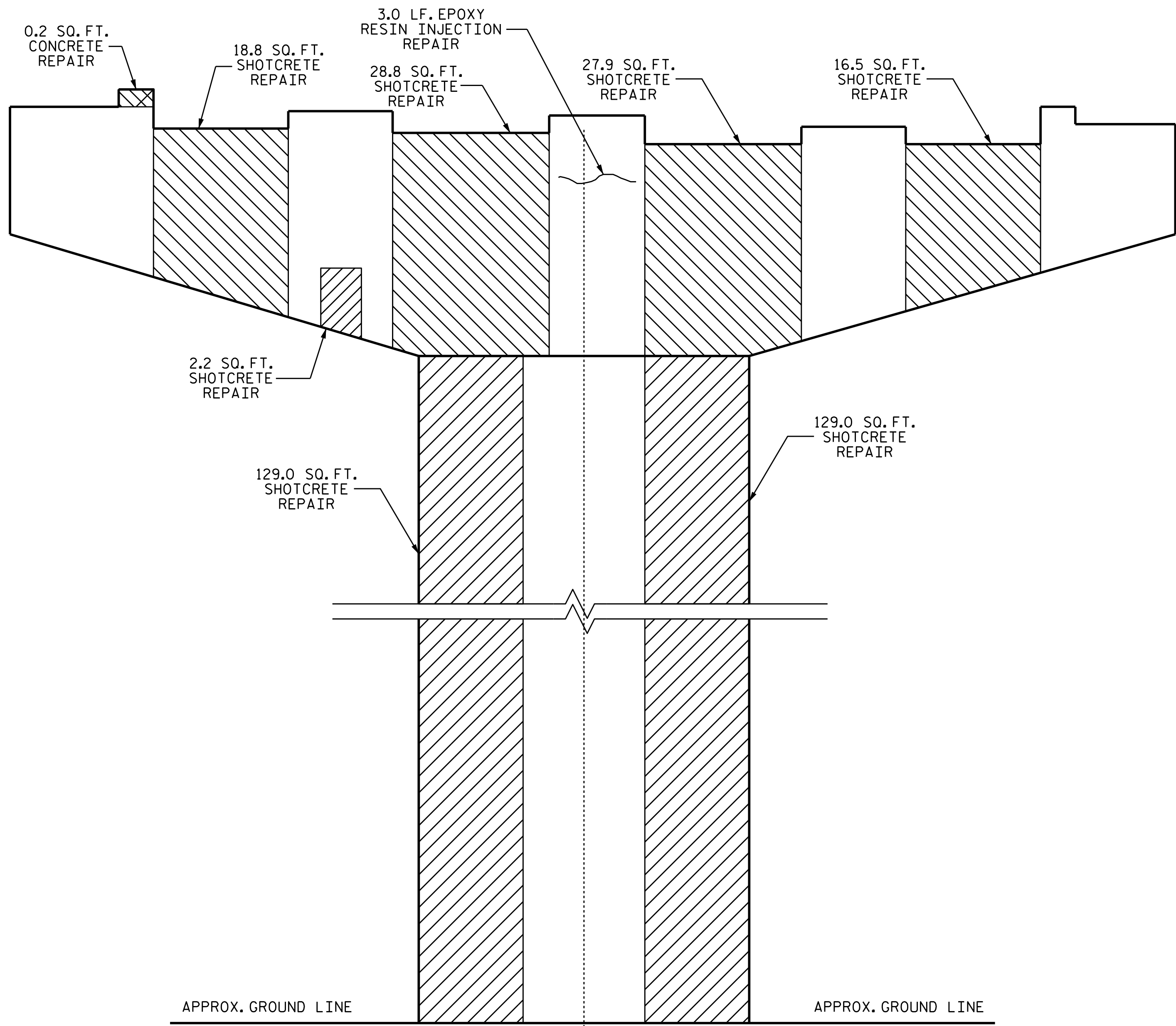
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
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2			4			56



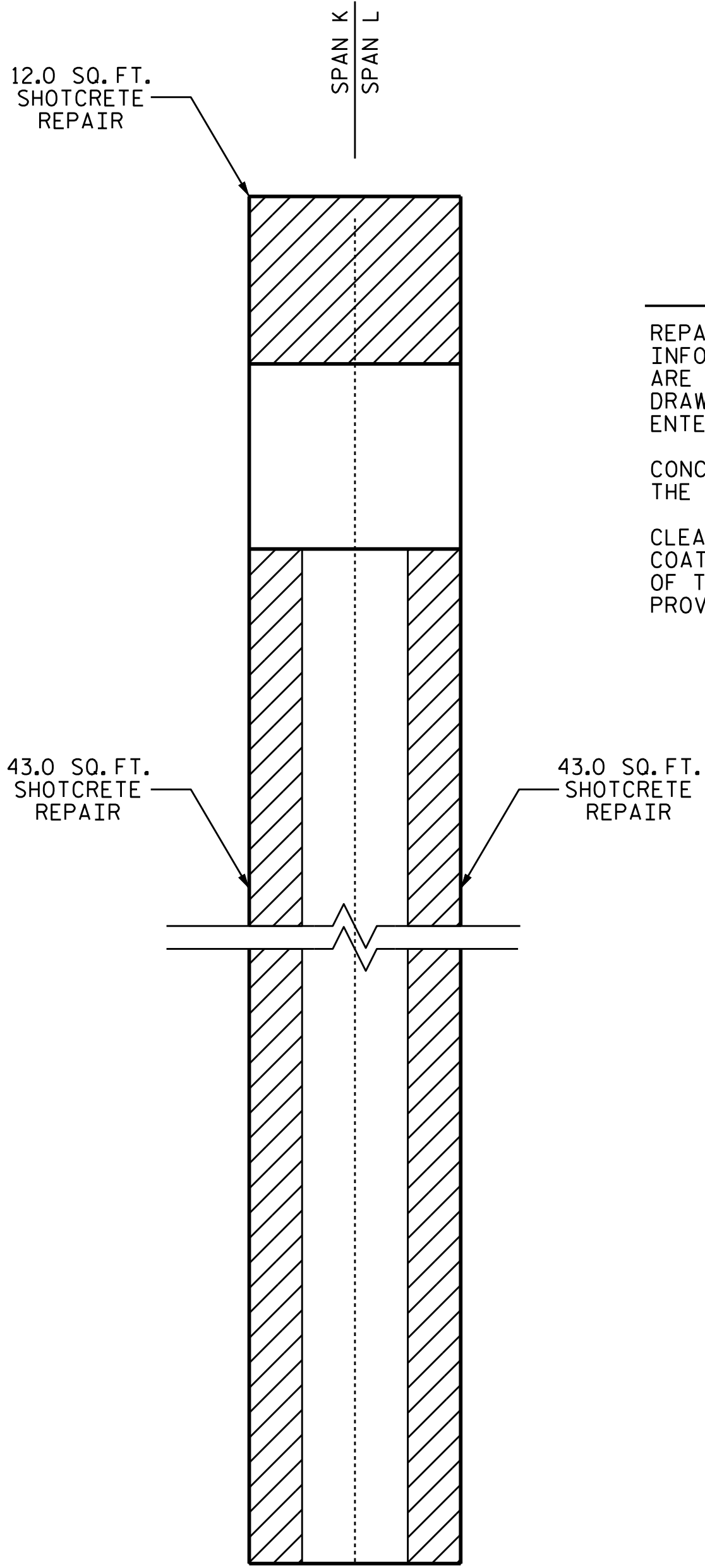
PLAN - TOP OF CAP



ELEVATION

SPAN L

SPAN K



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 11 (K FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	106.2	53.1		
COLUMN	344.0	172.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	2.0	1.0		
EPOXY RESIN INJECTION	LIN. FT.			LIN. FT.
CAP	3.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.			SQ. FT.
TOP OF BENT CAP	71.1			

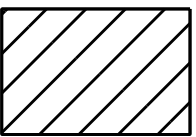
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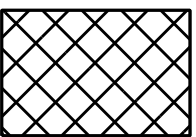
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SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



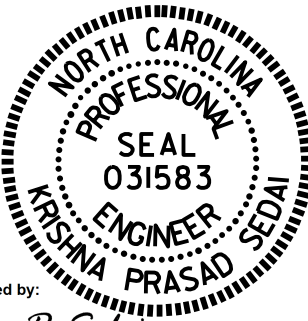
ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5

ROCKINGHAM COUNTY

BRIDGE NO. 30

SHEET 1 OF 2



DocuSigned by:  
Krishna P. Sadas  
EA6F7B4150BF4B7...  
3/7/2018

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 11  
SPAN K FACE

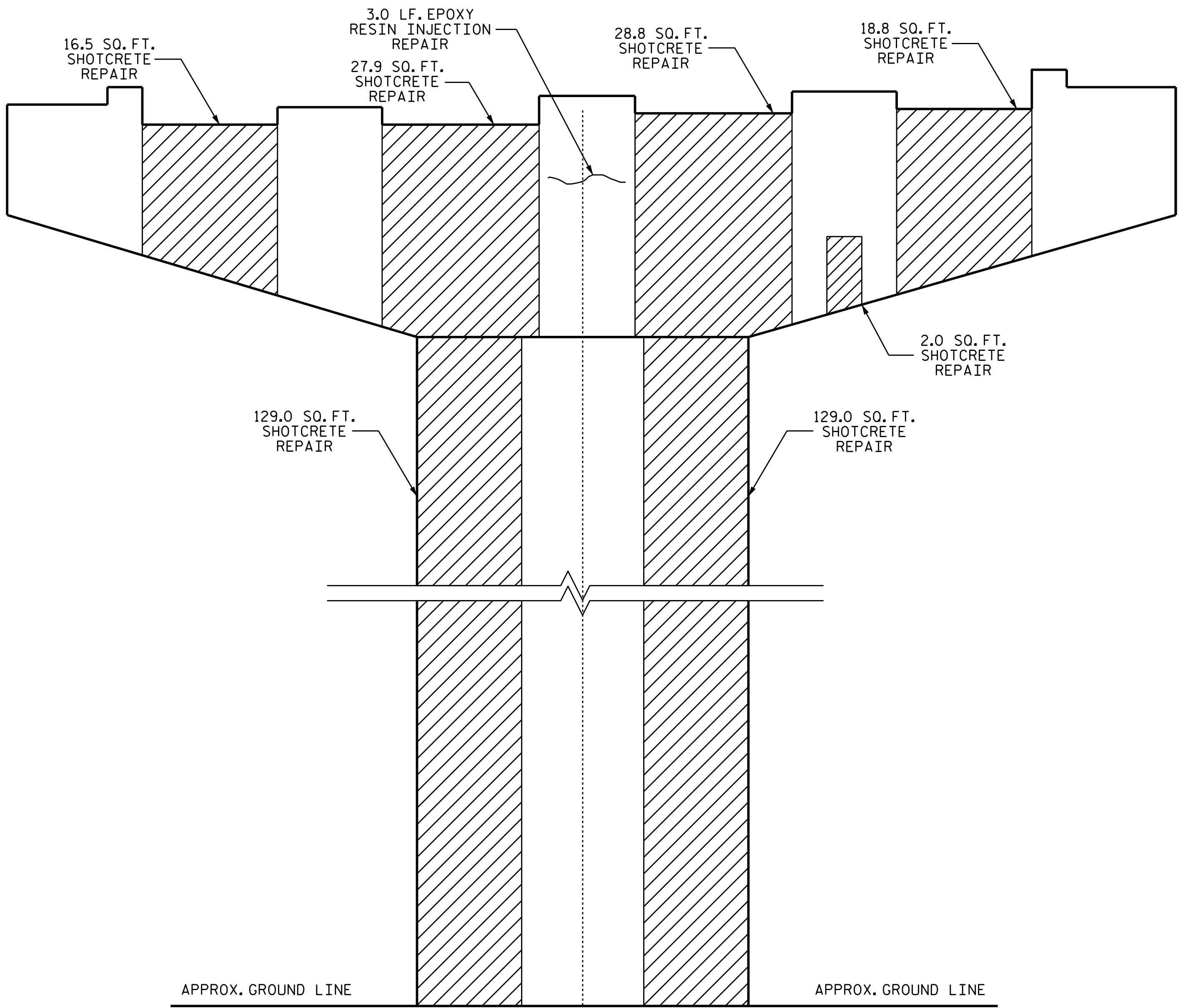
DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-53
2			4			TOTAL SHEETS 56

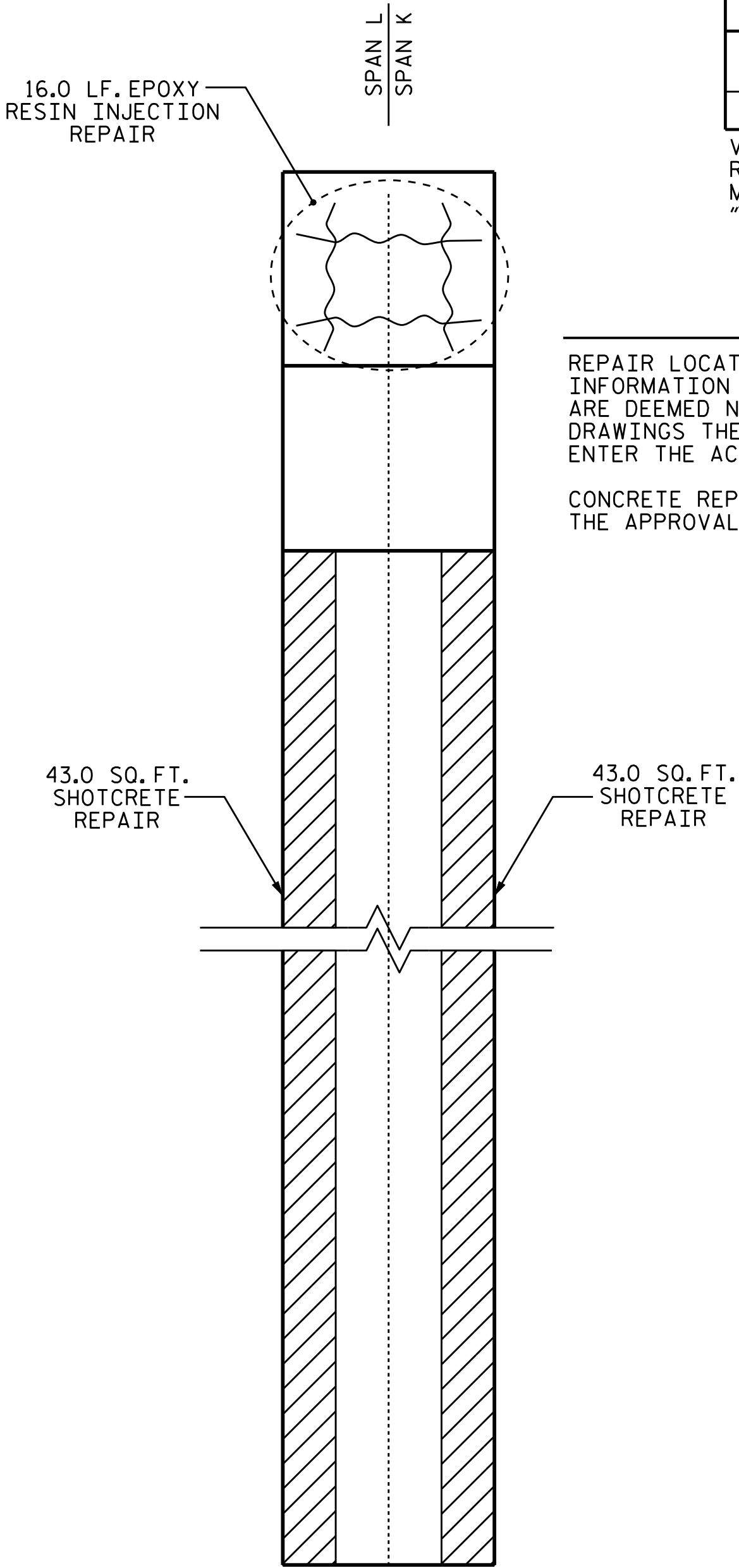


PLAN - BOTTOM OF CAP



ELEVATION

SPAN K  
SPAN L



END VIEW

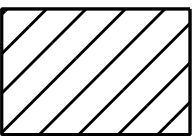
AS-BUILT REPAIR QUANTITY TABLE				
REPAIRS BENT 11 (L FACE)	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	198.6	99.3		
COLUMN	344.0	172.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		19.0		
COLUMN		0.0		

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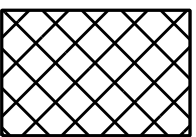
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SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
BRIDGE NO. 30

SHEET 2 OF 2



DocuSigned by:  
Krishna P. Seda  
EA6F7B4150BF4B7... 3/7/2018

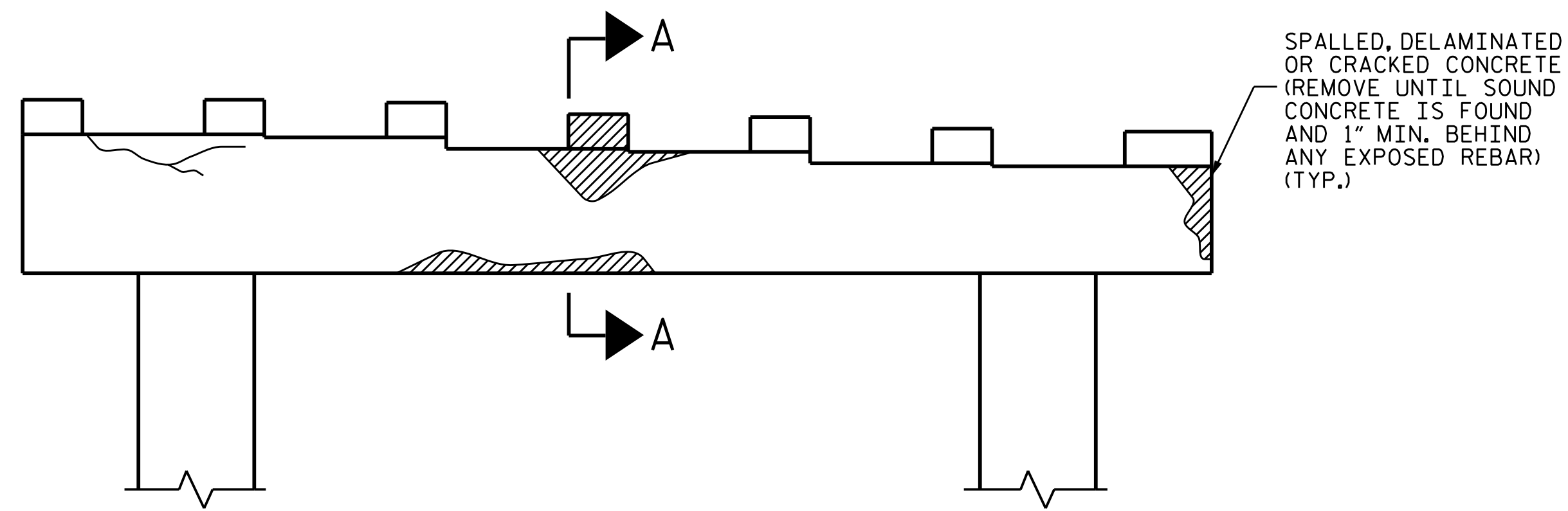
SUBSTRUCTURE  
BENT 11  
SPAN L FACE

DRAWN BY : H. T. BARBOUR DATE : 8-2-17  
CHECKED BY : A. SORSENGINH DATE : 8-17

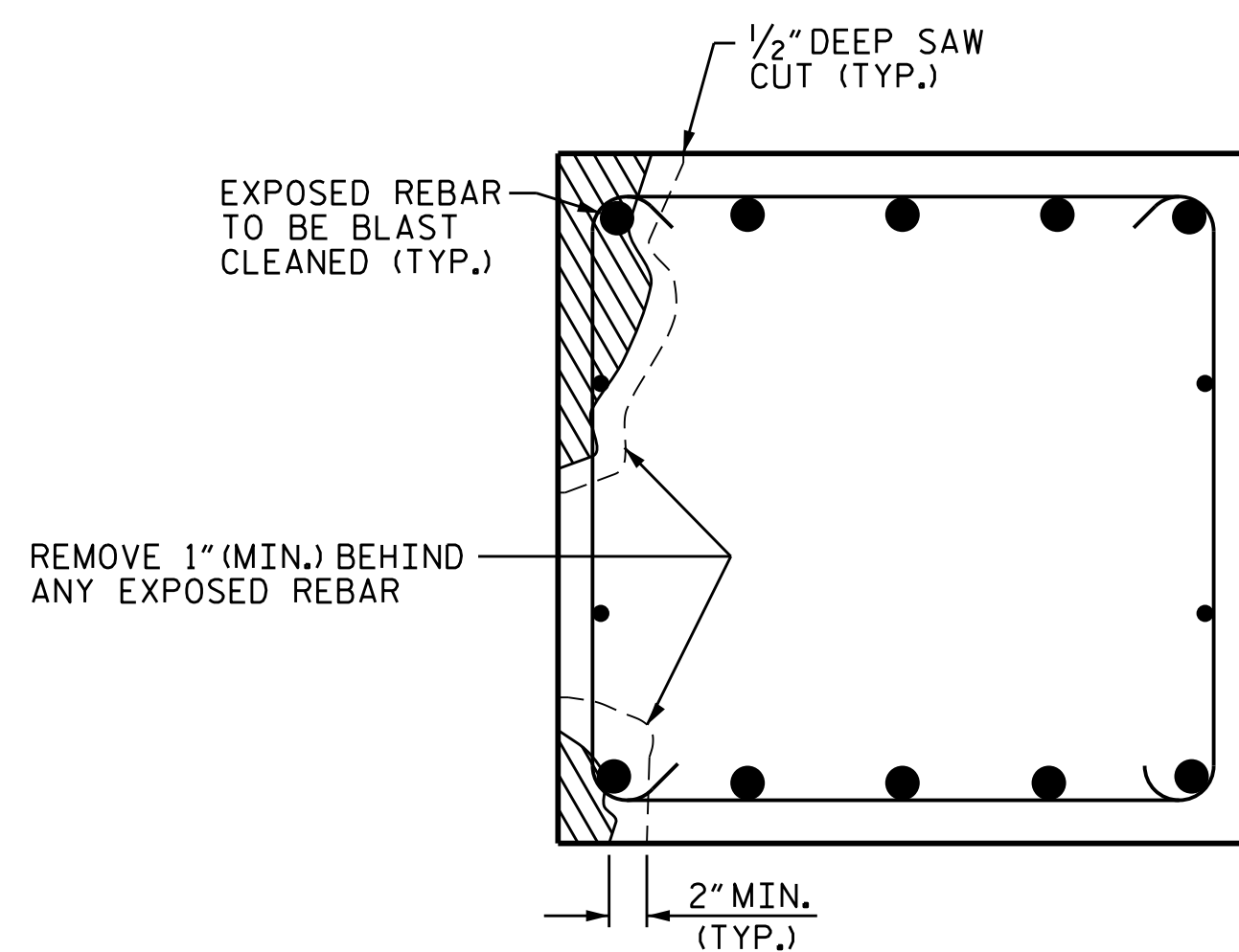
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			
2			4			56



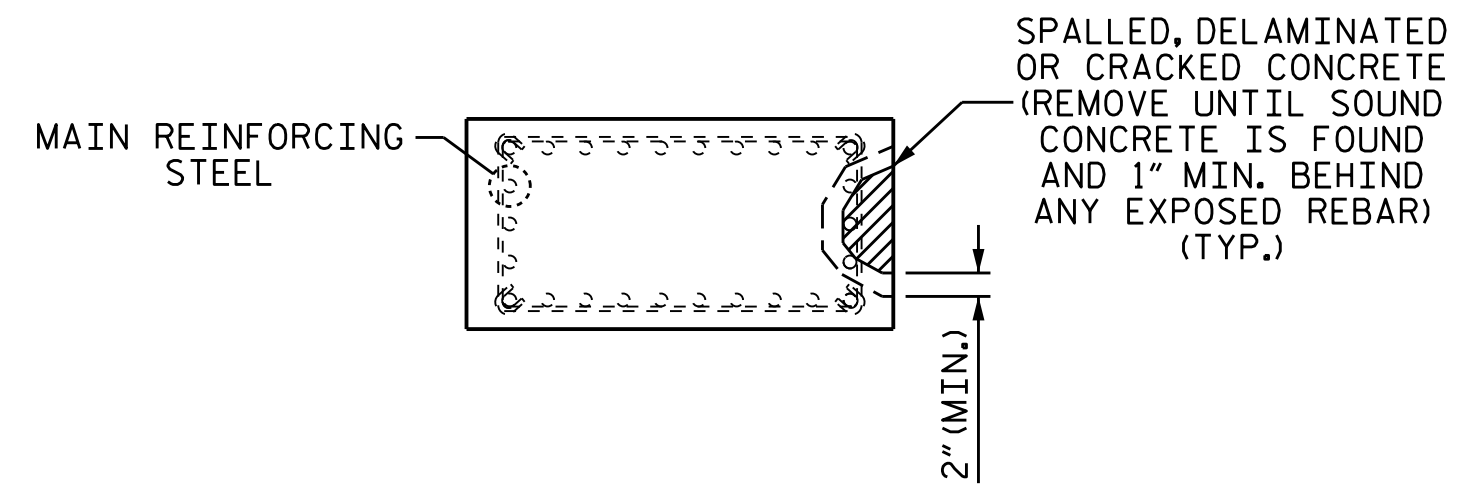


BENT CAP REPAIRS

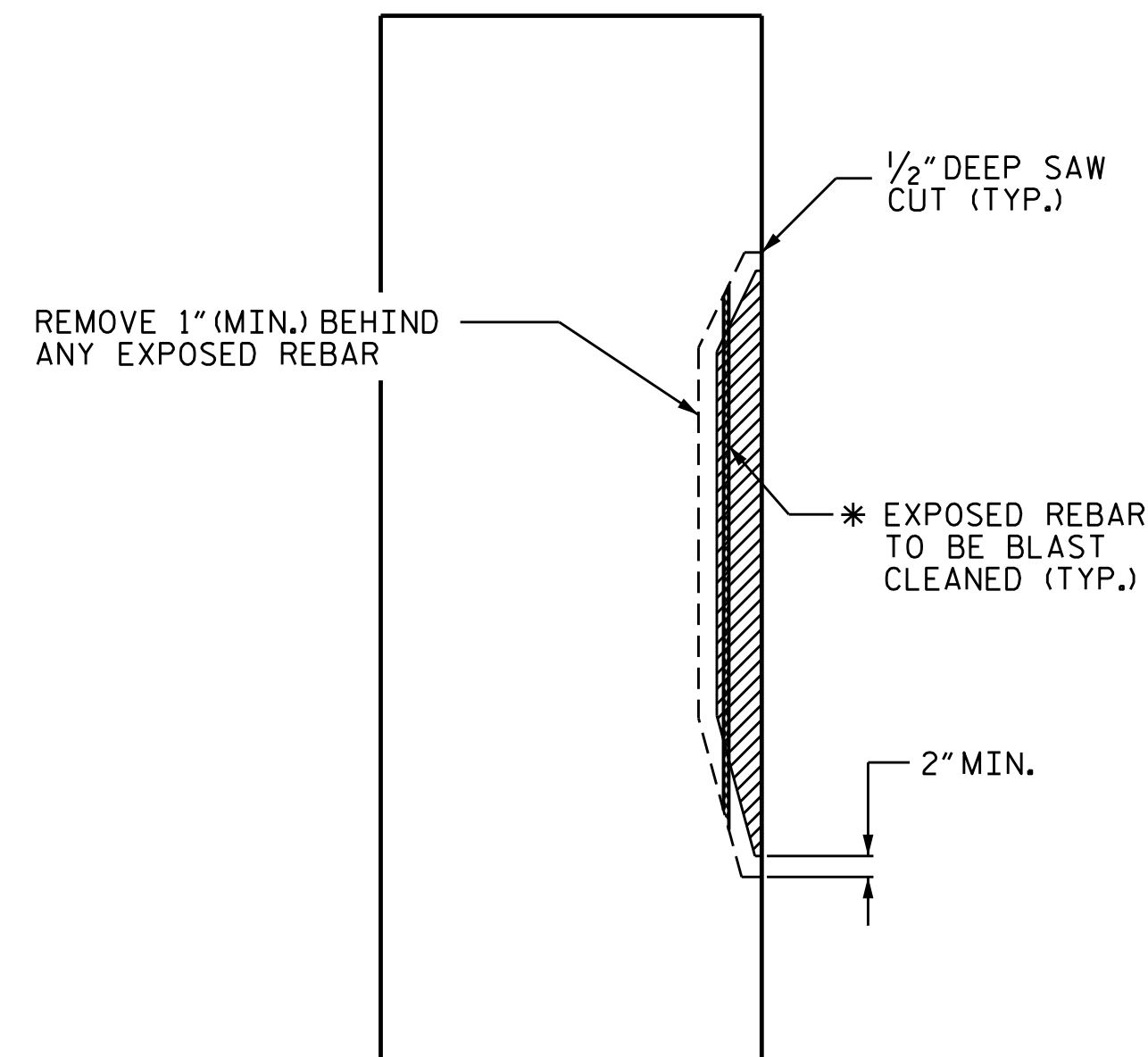


SECTION A-A

CAP AND PEDESTAL REPAIR



PLAN OF COLUMN

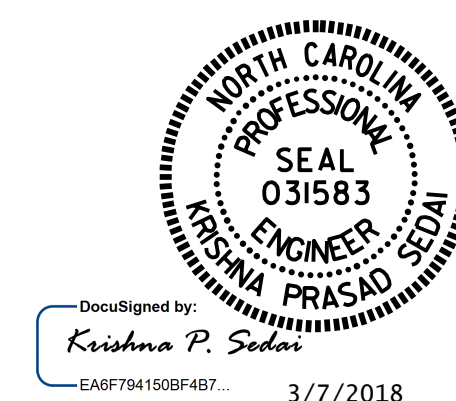


\* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

ELEVATION OF COLUMN

COLUMN REPAIR

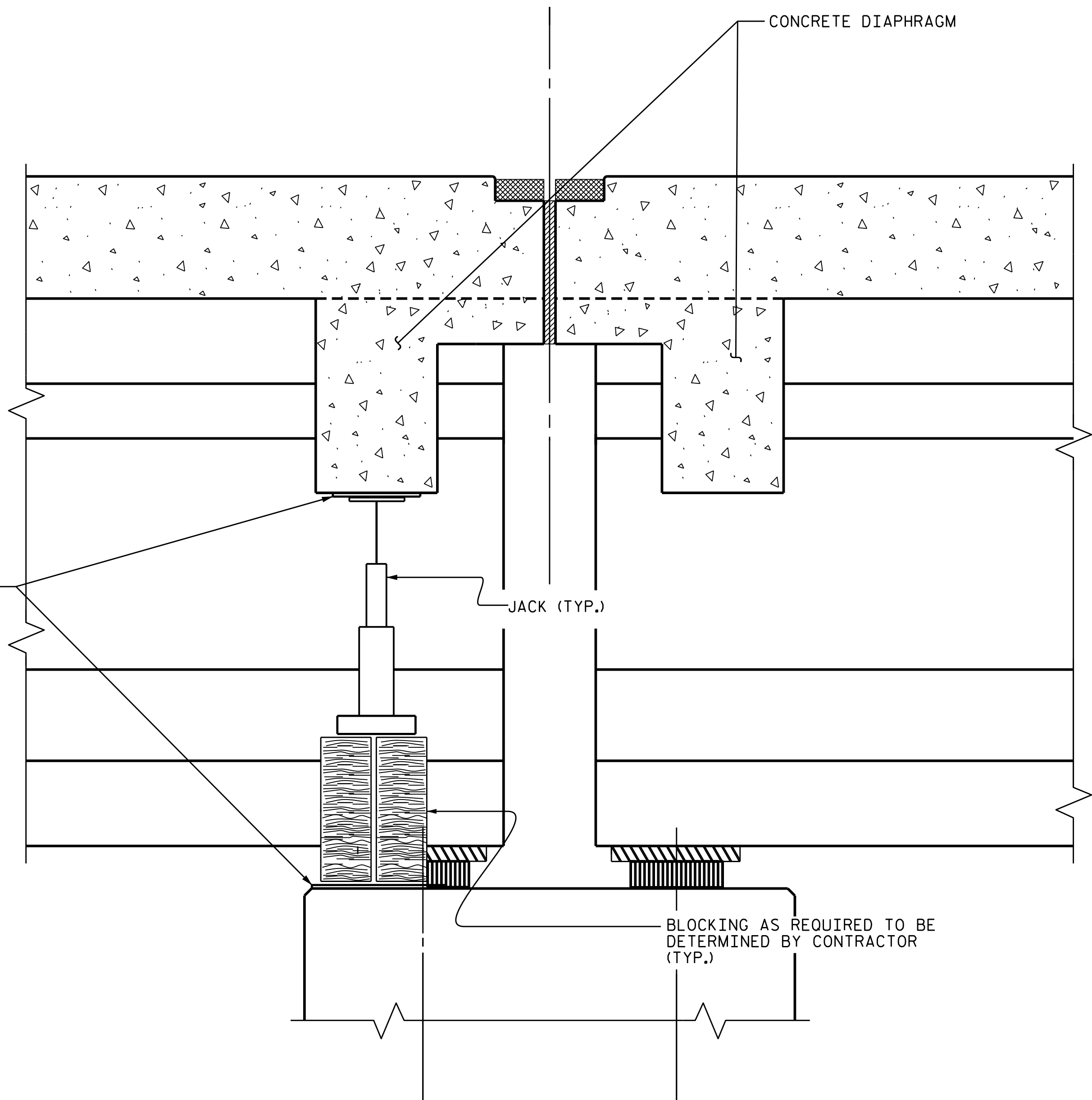
PROJECT NO. 15BPR.5  
ROCKINGHAM COUNTY  
 BRIDGE NO. 30



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.	
TYPICAL CAP AND COLUMN REPAIR DETAILS						S-55	
REVISIONS						TOTAL SHEETS	
NO.	BY:	DATE:	NO.	BY:	DATE:	56	
1			3				
2			4				

DRAWN BY : A. SORSENGINH DATE : 8/2017  
 CHECKED BY : H. T. BARBOUR DATE : 11/2017

DOCUMENT NOT CONSIDERED  
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 SIGNATURES COMPLETED



SECTION THRU DIAPHRAGM

JACKING NOTES:

THE BEAM SHALL BE LIFTED ENOUGH THAT THE BEAM CLEARS THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE FOR A METHOD TO REMOVE THE JACKS AND SUPPORT THE BEAM FOR DEAD AND LIVE LOAD DURING THE REPAIR OPERATIONS. IF THE JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION, THEY SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

IF, DURING THE JACKING PROCESS, OR WHILE THE BEAM IS BEING SUPPORTED, THE BEAM SHIFTS FROM ITS ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

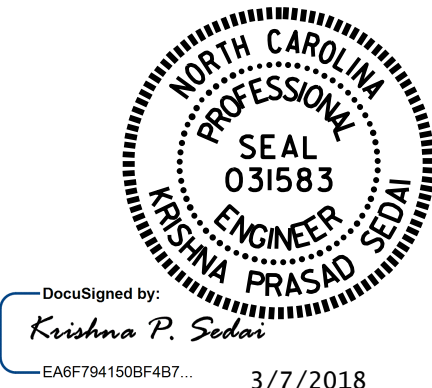
PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE BEAM FROM BEING LIFTED.

BEARINGS ADJACENT TO THE BEAM BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER REPAIR OPERATIONS ARE COMPLETED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS  $\frac{1}{8}$ ".

THIS DETAIL IS A GENERIC EXAMPLE OF A JACKING SCHEME AND DOES NOT NECESSARILY REPRESENT SPECIFIC CONDITIONS AT A PARTICULAR BRIDGE. ACTUAL BRIDGE GEOMETRIES, DIMENSIONS, AND CONDITIONS MAY DIFFER FROM THIS DETAIL. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL INVESTIGATE THE BRIDGE ON THE PROJECT AND DEVELOP A JACKING PLAN TO BE SUBMITTED FOR REVIEW AND APPROVAL. SEE BRIDGE JACKING SPECIAL PROVISION.

PROJECT NO. 15BRP.5  
ROCKINIGHAM COUNTY  
BRIDGE NO. 30



JACKING DETAIL

DRAWN BY : H. T. BARBOUR DATE : 7-27-17  
CHECKED BY : E. K. POPE DATE : 8-17-17

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS 56
2			4			

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS.PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS.PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS.PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	- -	24,000 LBS.PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS.PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS.PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - -	375 LBS.PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS.PER CU.FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8"Ø SHEAR STUDS FOR THE 3/4"Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8"Ø STUDS FOR 4 - 3/4"Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8"Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4"Ø STUDS BASED ON THE RATIO OF 3 - 7/8"Ø STUDS FOR 4 - 3/4"Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

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